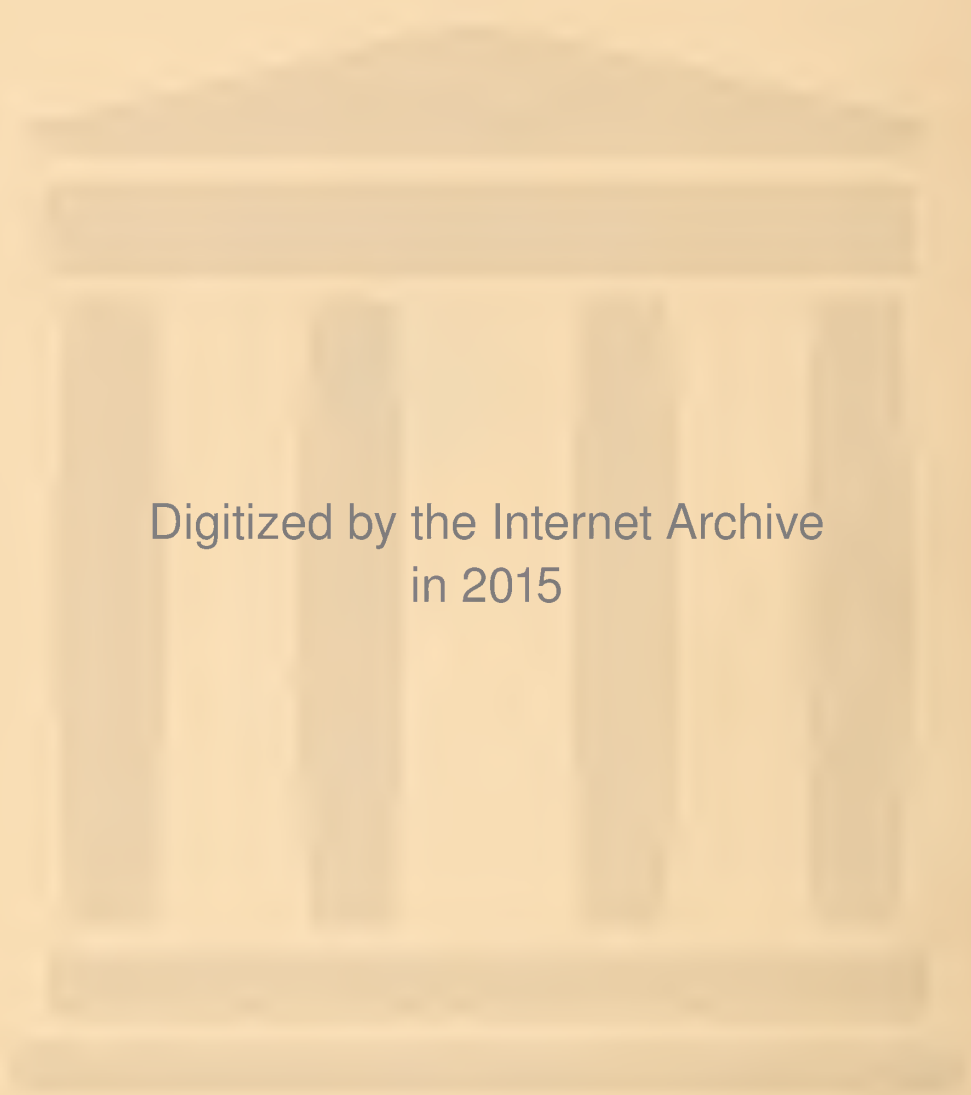


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Illinois Medical Journal

THE OFFICIAL JOURNAL OF

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JULY TO DECEMBER, 1941

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This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the titles of papers

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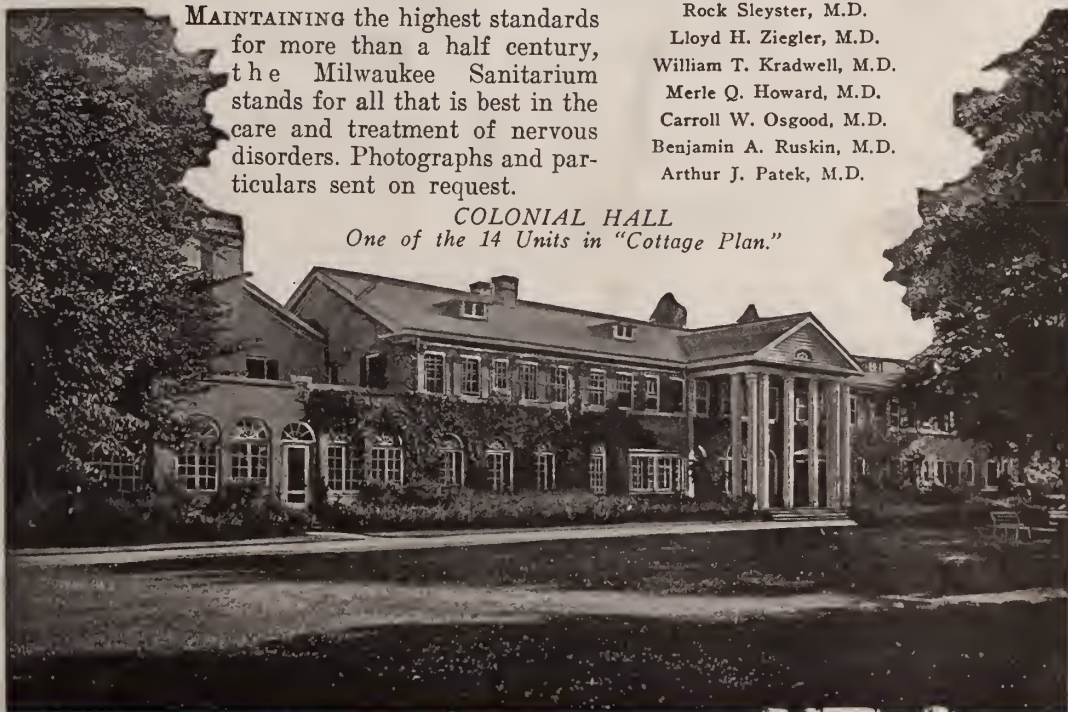
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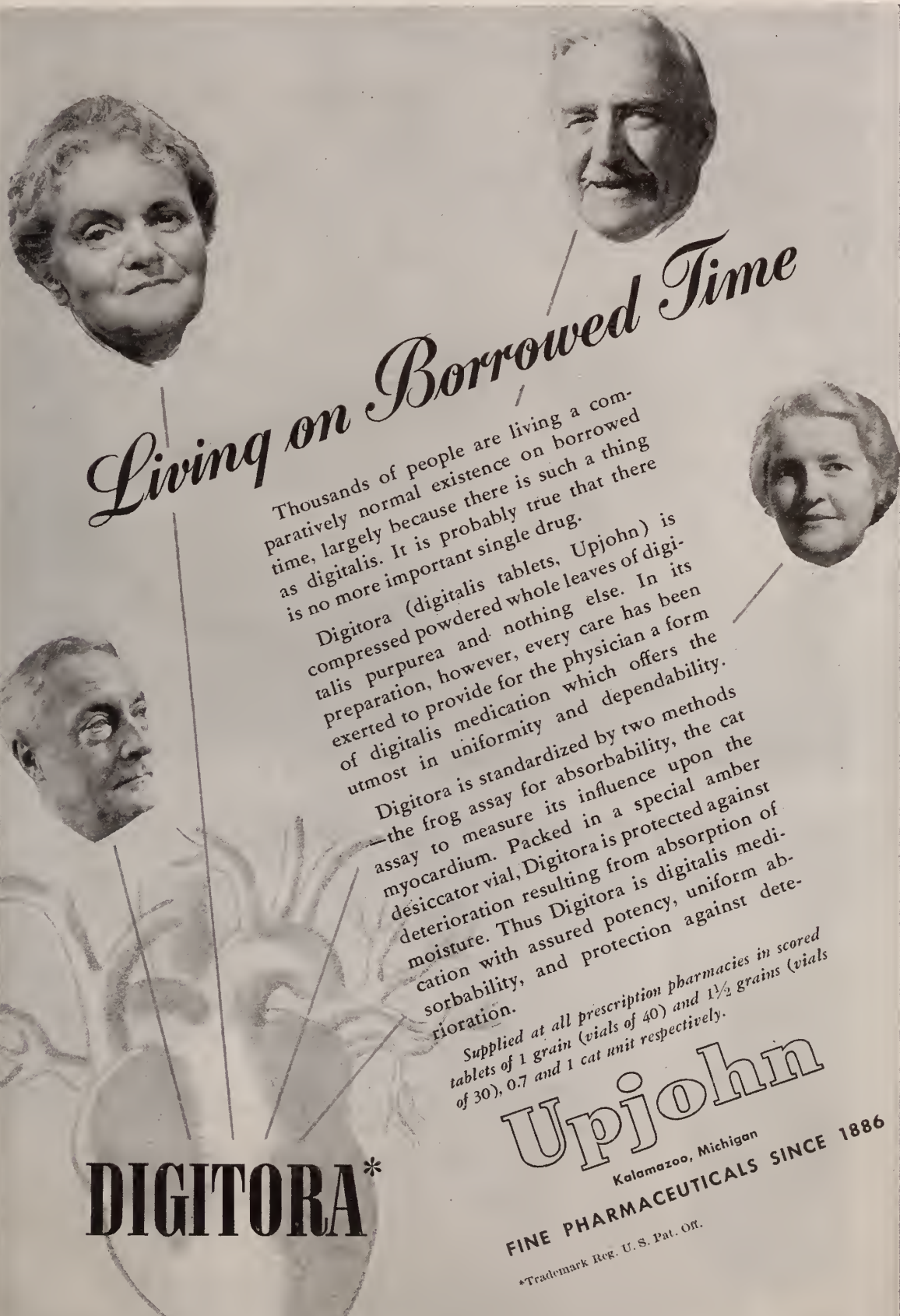
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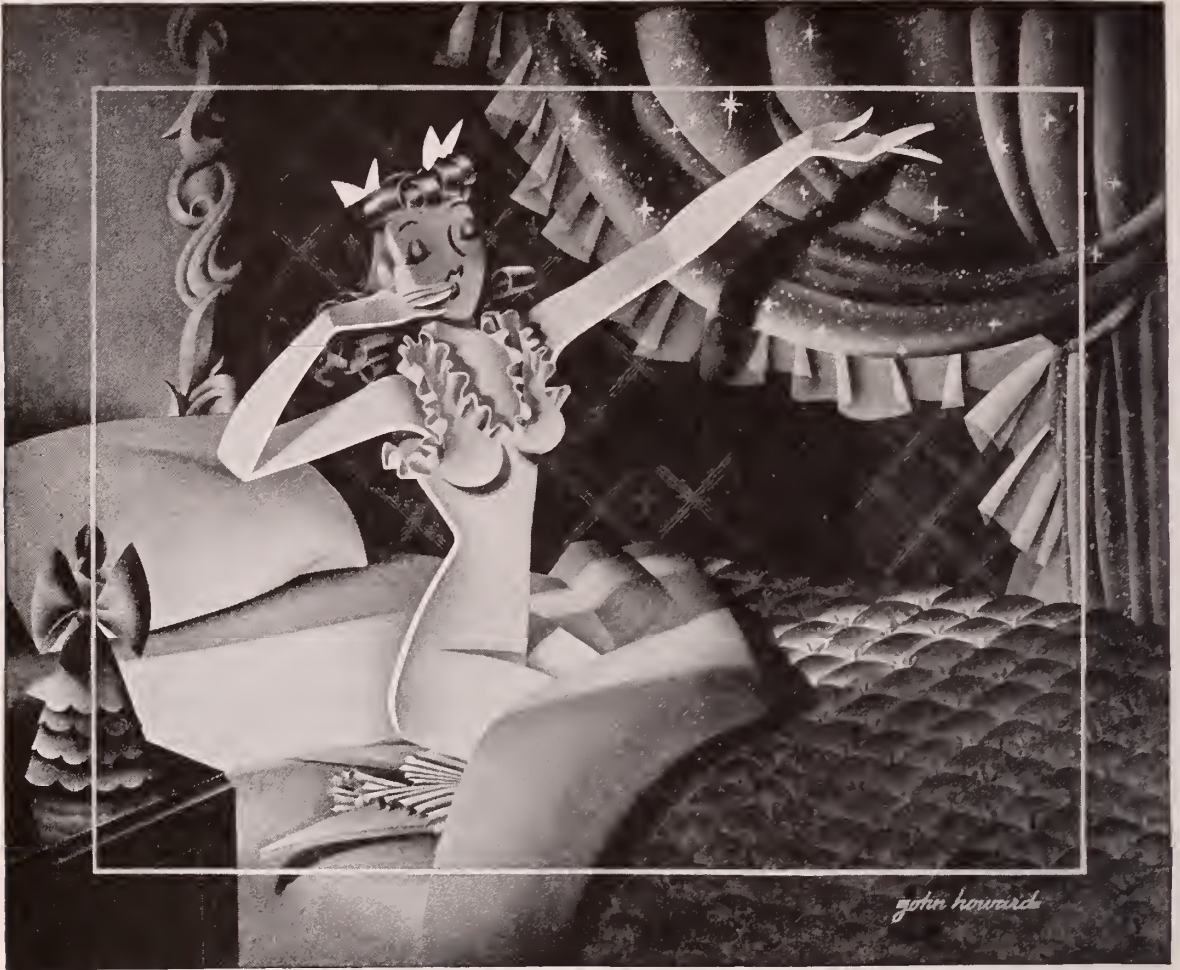
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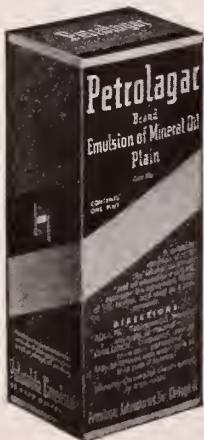
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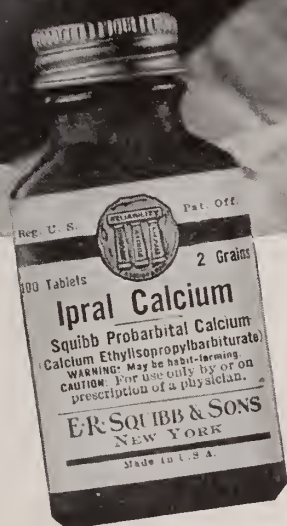
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Ipral is quite rapidly eliminated and the patient awakens generally calm and refreshed. Its effective dose is small (2 to 4 grains) and it is free from cumulative effects when properly regulated. Even in larger therapeutic doses the effect on heart, cir-

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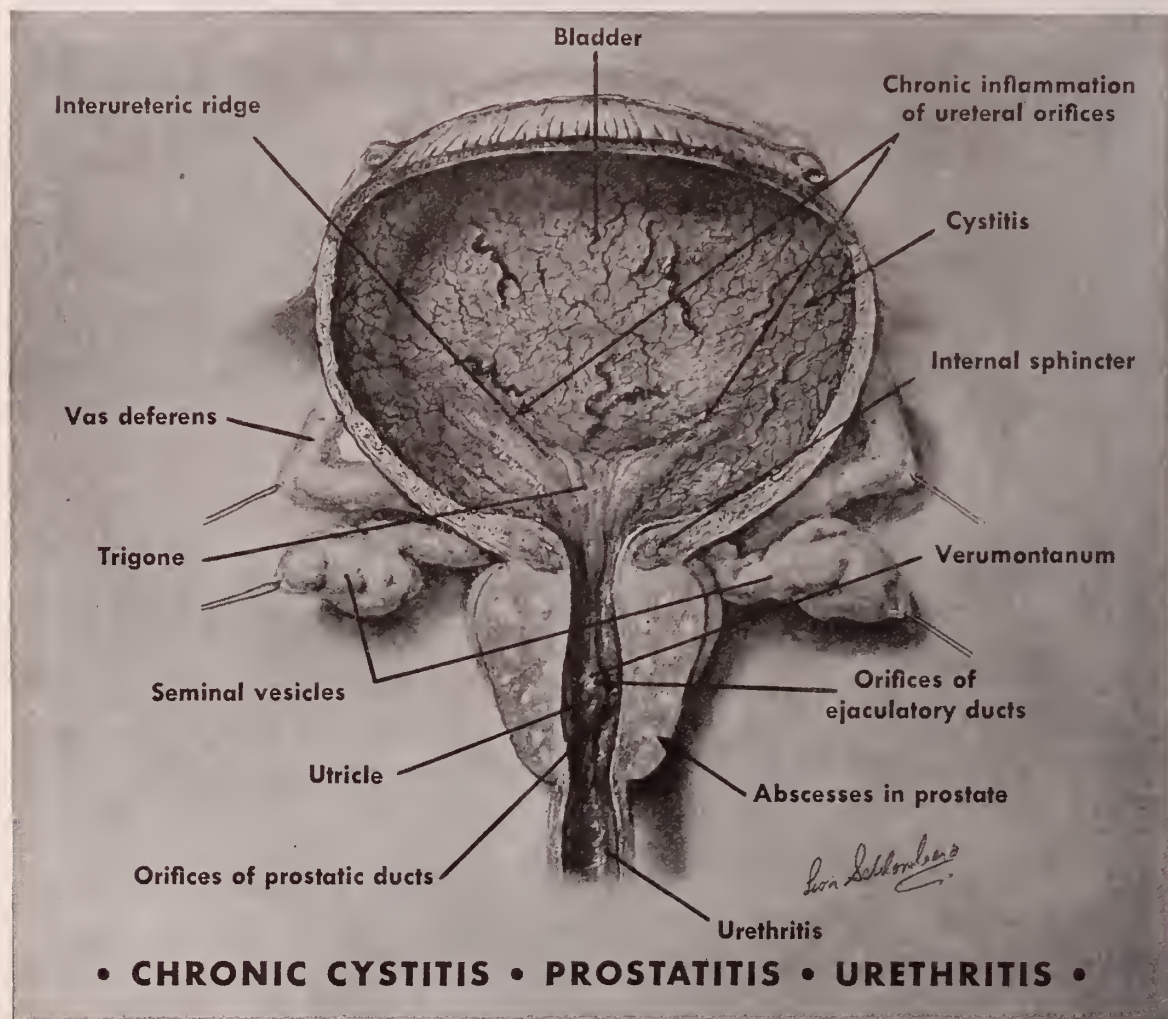
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No Change	15	18	10	38	5	3	35	12	
Increased				7	2		1	1	
TOTAL	47	116	38	99	17	20	77	55	7
Expressed in Per Cent									
Improved	68.2	84.5	74.0	54.5	59.0	85.0	53.0	76.5	100
No Change	31.8	15.5	26.0	38.4	29.3	15.0	45.5	21.8	
Increased				7.1	11.7		1.5	1.7	

(Reynolds, J. S., Wilkey, J. L., and Choy, J. K. L., Clinical application and results of pyridium therapy, *Illinois M. J.* 78:544-547, December 1940.)

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administer two tablespoonfuls of
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when stools become consolidated, one
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Oil 3 times daily may be indicated.

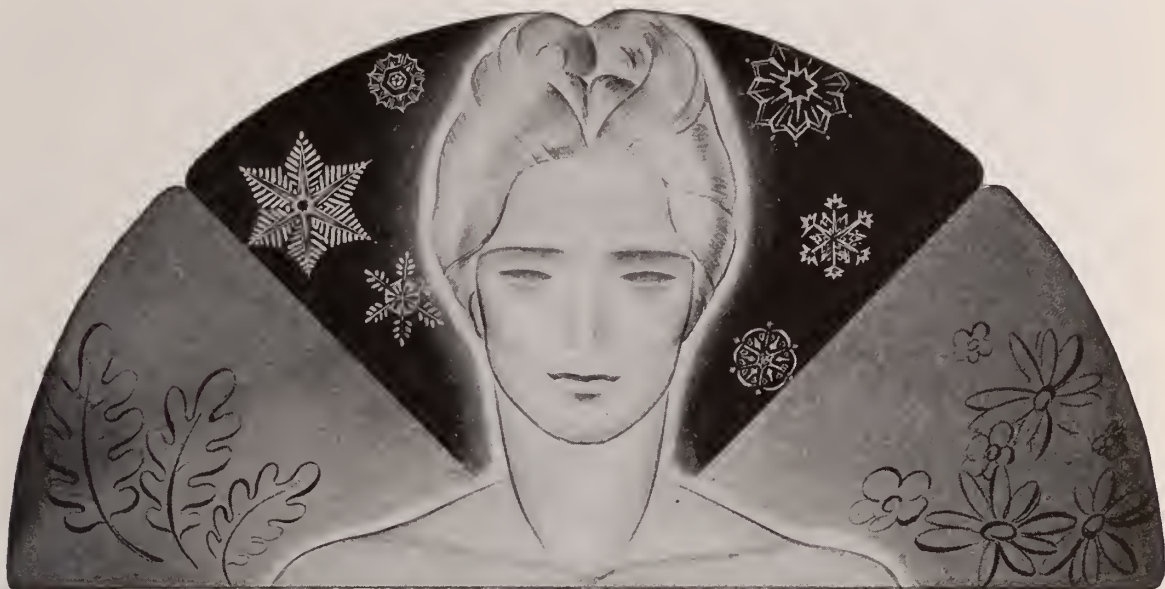


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Contains vitamins B₁, B₂(G), B₆,
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	ELIXIR	SYRUP	TABLETS OR CAPSULES
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Children	1-1½ teaspoonfuls	2-3
Adults	2 teaspoonfuls	4
Therapeutic*	1-2 tablespoonfuls	6-12

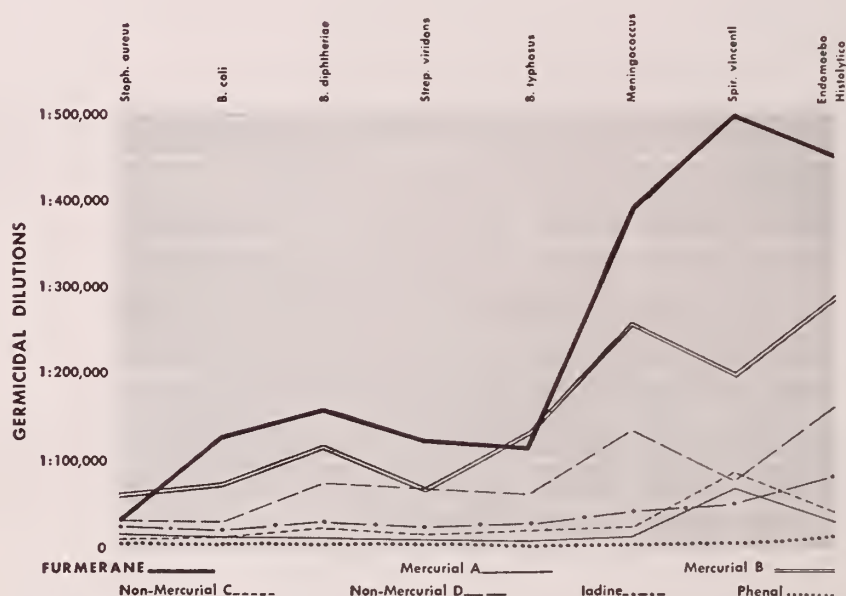
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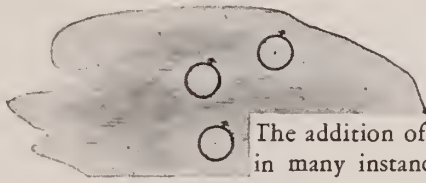
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The addition of medicinal iron to the diet is indicated in many instances as a prophylaxis against secondary anemia. Hematinic Plastules provide a supplementary source of iron to help maintain a positive iron balance during the period of pregnancy.

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Suggested dosage—1 T. I. D. after meals.
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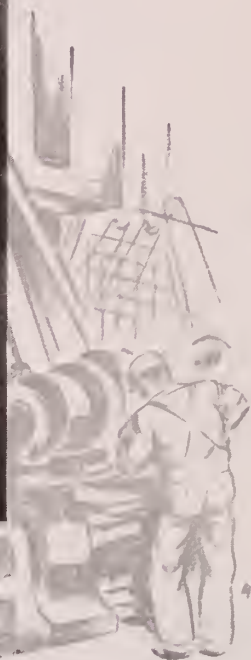
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ERTRON — A Systemic Treatment

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Ertronize the Arthritic

The proving-ground for Ertron has been its use in cases which have resisted ordinary methods of treatment for years. Its effectiveness in these resistant cases has been so outstanding that it has entirely changed the prognostic picture in chronic arthritis.

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The first few doses are sufficient, in most instances, to determine for the depressive patient:

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Brand of amphetamine sulfate



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The Illinois Medical Journal

July 1941

VOL. 80, NO. 1

Official Journal of the Illinois State Medical Society

Editorials

THE ILLINOIS MEDICAL JOURNAL

Volume 80 of the Illinois Medical Journal begins with this issue. During the next few months a number of changes will be made in the appearance and contents of this Journal. The first change is one which will be noticed readily by everyone receiving it — color on the front cover — in keeping with recent policies adopted by many medical journals throughout the country.

The Journal, the official publication of the Illinois State Medical Society, has been issued for the past forty years under the supervision of the Council and special committees. The Council recently named one Journal Committee to assume full responsibility for the publication of the Journal, its advertising policies, as well as the many other details in connection with the proper editing and publication of a modern medical journal.

An editorial board has also been named recently which will assume responsibility for the selection of suitable and timely scientific editorials, and also to aid in the selection of the scientific articles to be published monthly. It is the desire of the Council, the Editorial Board and the Editor to make the Illinois Medical Journal truly the official publication of the State Medical Society and to solicit suggestions or criticisms from the membership at any time they desire to send them.

The Journal will continue to publish the usual number of interesting original articles of a scien-

tific nature each month. The Medical Economics Department will be continued under the supervision of a new chairman recently named by the Council. News items of general interest are to be solicited from all component county medical societies.

It is planned to publish regularly carefully selected clinicopathological reports which will be edited by the pathologist member of the Editorial Board. These cases will be selected from a large group of hospitals and institutions throughout the state where these conferences have been held regularly.

Additional features to be found in this Journal within a short time will be announced within the next two or three months. The personnel of the Editorial Board will be published in the August Illinois Medical Journal and will appear regularly thereafter.

The Journal is truly the official organ of the Illinois State Medical Society, and those responsible for its publication will appreciate suggestions which will improve it and make it a better medical publication.

PUBLIC ASSISTANCE PROGRAMS

At the recent meeting of the Illinois State Medical Society held in Chicago, Charles H. Phifer, M.D., was inducted into the office of President at the closing session of the House of Delegates. In his acceptance speech Dr. Phifer referred to the ever increasing demands on the medical profession for medical care for those re-

ceiving the several forms of public assistance.

For some months a special committee had been acting in an advisory capacity to the State Division of Old Age Assistance of the Department of Public Welfare, attempting to develop a plan which would give a better type of medical care to these recipients of old age assistance, and at the same time give reasonable compensation to the physicians rendering the services.

We have been informed that approximately 967,000 citizens of Illinois have been on the public assistance programs in Illinois recently, and in some of these classifications, the total number is gradually increasing. A certain percentage of the millions of dollars spent on these programs is being used for medical care, and is being distributed principally through administrators of relief, township supervisors designated as "overseers of the poor," and through the State Department of Public Welfare.

In his annual report to the House of Delegates, Dr. Phifer urged that one committee within the Illinois State Medical Society be desig-

nated to act in an advisory capacity to the several public assistance groups desiring medical aid. Then, we should have similar county medical society committees named for a similar purpose to act locally when called upon for any type of service.

The House of Delegates approved the report made by Dr. Phifer, and recommended that the Council select a committee to assume the responsibility for giving all possible information to the state and/or the federal agencies desiring same, and to render all possible assistance in setting up programs for supplying adequate medical care for these clients.

The committee has been designated as the Advisory Committee on Medical Care of Public Assistance Recipients, and has held meetings to consider the several functions for which it was named. Efforts will be made immediately to get similar committees in all component county medical societies to which the many problems concerning medical care of public assistance recipients in the individual counties may be reserved.

ILLINOIS STATE MEDICAL SOCIETY

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PRESIDENT-ELECT.....	E. H. WELD, Rockford
1ST VICE-PRESIDENT.....	H. P. SAUNDERS, Chicago
2ND VICE-PRESIDENT.....	FRED H. MULLER, Chicago
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Ralph P. Peairs.....	5th District, Normal	1943
T. B. Knox.....	6th District, Quincy	1942
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C. E. Wilkinson.....	8th District, Danville	1943
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G. C. Otrich.....	10th District, Belleville	1942
Edw. S. Hamilton.....	11th District, Kankakee	1944
S. E. Munson.....	At Large, Springfield	1942
J. S. Templeton.....	At Large, Pinckneyville	1944
James H. Hutton.....	At Large, Chicago	1943
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State Society will pay no bills for legal services except those contracted by the Committee. Notify the Chairman at once. Do not employ attorneys.

Send advertising copy, cuts and all communications relating to advertising to ILLINOIS MEDICAL JOURNAL, 30 N. Michigan Avenue, Chicago.

Original articles and membership correspondence to Dr. Harold M. Camp, Monmouth, Ill.

Society proceedings and news items and changes in the mailing list to Managing Editor, 30 N. Michigan Ave., Chicago.

Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is \$3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. \$4.00 per year for all foreign countries included in the postal union. Canada, \$3.50. Single current copies, 50 cents.

The members of this committee as named by the Council are:

Dr. Charles H. Phifer, chairman
 Dr. James H. Hutton
 Dr. Julius H. Hess
 Dr. E. P. Coleman
 Dr. E. S. Hamilton
 Dr. Harold M. Camp

Letters have been sent to all county society officers asking that similar committees be named as early as possible so that they can begin to function immediately.

It is believed by those who have studied the several problems pertaining to medical care of public assistance recipients that these committees when properly organized, will be of material assistance in the development of adequate medical care programs to give these recipients better medical care, and to give some remuneration to the many physicians participating in these various programs.

COUNCIL APPROVES WOMEN'S FIELD ARMY

At the June meeting of the Council, a letter was read from Dr. John A. Wolfer, Chairman of the Committee on Cancer Control, urging the Council to approve the work of the Women's Field Army. Motion was made and carried that this request be approved.

The State headquarters of the Women's Field Army of the American Society for the Control of Cancer are located at 48 West Division Street in Chicago. The new State Commander, Mrs. Arthur I. Edison, is endeavoring to reorganize the work of the Women's Field Army by appointing district commanders and Captains, in every county, who will meet with the approval of the local county medical societies so that the educational campaign can be carried on under the immediate supervision of the local medical groups. With the approval of the Council, a cancer representative has been selected in each councilor district to act as a liaison between the woman's Field Army, the County Medical Societies and the Cancer Committee of the Illinois State Medical Society; also to assist in the organization of the cancer control program in their respective districts.

Despite the over-whelming evidence of the

curability of early cancer, the American Institute of Public Opinion in a recent nationwide survey found that one out of every three people did not know that the disease could be cured. The same survey revealed that one out of five people still thought, incorrectly, that cancer was contagious, and that three out of four people feared cancer more than any other disease. To bring the truth to the millions who need it is the challenging duty assumed by the Army.

With the aid of the local county medical societies, the Women's Field Army hopes to arrange an educational program on Cancer Control in every county in the State during the coming year. The film, "Choose to Live," is meeting with favor wherever shown and the exhibit of the WFA received the Honorable Mention Award for Educational Exhibits at the State Medical Society Convention in Chicago.

TO REPORT DEAF CHILDREN

Every child under six years of age who is totally deaf or whose hearing is impaired must be reported to the State Commissioner of Health, we are reminded by *Health News*. Reports are to be sent to Division of Maternity, Infancy, and Child Hygiene, attention Dr. Marion F. Loew.

This reminder is occasioned by the fact that the department is being notified of comparatively few such cases and that reports are sent through a variety of channels. In view of the apparent confusion as to what cases are reportable and to whom, it is believed advisable to review the pertinent provisions of the Public Health Law.

Section 320-a requires every attending or consulting physician, nurse, parent, or guardian, having charge of any minor under six years of age who is totally deaf or whose hearing is impaired, to report at once the name, age, and residence of the child to the State Commissioner of Health and to furnish such additional information as the commissioner shall require. Since homes for the deaf are reducing the age limit for admission from six to three years, it is more urgent than ever that such children be discovered and reported at as early an age as possible. The Division of Maternity, Infancy, and Child Hygiene has certain funds available for the otologic examination of those children who, because of inability to pay, have been unable to procure such an examination.—*New York State Journal*.

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

In the last issue of the Illinois State Medical Journal the Chairman of the Medical Economics Committee stated there would be a new Chairman after the June meeting of the Council. This, of course, was the result of Dr. Hamilton having been elected Chairman of the Council.

Some years ago when the Medical Economics Committee was organized it was the writers privilege as Chairman of the Council at that time to appoint Dr. Hamilton as Chairman of this important Committee. He has held that position since that time, and through his efforts the space allotted to this Committee was secured and he has acted in the capacity of Chairman and Editor.

Being familiar with the immense amount of work Dr. Hamilton did I was reluctant to accept the Chairmanship of this Committee because I had just completed my work as Councilor at Large and was looking forward to less activity more than to increased responsibility. However, here I am and with the help of the Committee and the Profession at large I hope we may be able to carry on the work.

Briefly I desire to set forth three important factors that have effected and will continue to effect the practice of medicine for many years. First, there have been rapid and wide social and economic changes in the United States in the past fifteen or twenty years. Previous to that there had been for many years a gradual tendency to social, economic and political changes. These perhaps in themselves would have been sufficient to make some changes in the practice of medicine especially with the rapid advancement of medical science in the diagnostic and therapeutic fields of medicine. Second, the panic of 1929 ushered in a prolonged period of unemployment and the administration of relief

to the unemployed, and with that another change in the practice of medicine was brought about and still continues to be with us at the present time though in a diminishing number. However, with the number of individuals in the United States past sixty-five years of age, totaling around twelve million people, ninety-five percent of them being dependent for their food, shelter, clothing and medical care it seems obvious that these changes in medical practice resulting from unemployment will be permanent ones. Third, the present emergency based upon the European conflict brings about new problems both for the army and local medical care that may result in drastic changes not yet considered and not being necessary, at the present time. With the increasing power given the federal government in various branches of our industry one has to consider quite seriously what might happen if national health was declared an emergency. Because of these evident changes the need for cooperation in the medical societies is imperative at the present time.

The suggestion of your President, Dr. Charles Phifer, that all county medical societies appoint a committee to deal with the various relief problems throughout the state is, of course, essentially sound and should receive the united support of every doctor. Perhaps this is the most important economic thing we have to do at the present time. And last, we should be very careful as a medical profession, under the present emergency that exist, that while we are ready and willing to cooperate and relinquish we must be so organized that when the emergency is over that the practice of medicine is retained under the control of the medical profession.

Dr. R. K. Packard, Chairman
Committee on Medical Economics.

HOSPITALIZATION INSURANCE

FRANK P. HAMMOND, M.D.

Medical Director, Plan for Hospital Care

CHICAGO

Your committee has assigned to me the subject of "Hospitalization Insurance." I assume that I was selected to speak on this subject because it is known that for the past two years I have been closely connected with the hospital service plan movement, and because of course you wish to become better acquainted with the objectives and operations of group hospitalization plans, particularly as they relate to the medical profession.

It isn't necessary to point out to any group of doctors today that the public is becoming more and more conscious of the economic problems of medical and hospital care. Never before have so many schemes and systems been proposed which contemplate setting aside the established individual "fee for service" which you and I have always believed and continue to believe is the best system of charging for professional services such as our own.

We are all familiar, at least in a general way, with many such schemes. The Group Health Association in Washington, D. C., the Trinity Hospital Plan at Little Rock, Arkansas, the Milwaukee Clinic in Wisconsin, Michigan Medical Service in Detroit, the Civic Medical Center in Chicago, the Ross-Loos Clinic in Los Angeles, these we have all studied, and I think it is safe to say that we have not attempted to pass judgment on their value to the public without some knowledge of the details of their operation. We doctors are not, as the proponents of some of these schemes would have it believed, automatically opposed to all such proposals, regardless of their merit. We are opposed to some of them because we understand that they do not provide the public with adequate protection in the form of proper standards of professional care. We are opposed to others because they seek to provide too much service for too little money, and we know what the ultimate result of this must be. We are opposed to some because they permit the advertisement of professional service and the solicitation of the public. There are a few such schemes that we are not opposed to at all, notably, the Michigan

Medical Service, which is sponsored by the Michigan State Medical Society, and one or two others operating under medical sponsorship or supervision. We are observing these with interest, just as we observe with interest any new fact or method in our professional fields, withholding our judgment until a conclusion or a result is apparent.

Foremost among the schemes which we doctors have been observing with interest for several years is the group hospitalization movement which had its origin in the Southwest a little more than ten years ago, and which has since become nation-wide in its scope, embracing now nearly half the non-government hospitals of the United States and two-thirds the national bed capacity in non-government hospitals. To be sure, the group hospitalization movement does not directly involve any medical service. Because it is concerned with a new method of payment for the closely related services rendered by and in hospitals, however, and because in some instances, notably in the states of Michigan, New York, and Pennsylvania, the group hospitalization plans are closely identified with medical service programs of more recent origin, it is wise for us to attempt an evaluation of the movement at this time. It is to give you such an evaluation of group hospitalization that I am present at your meeting this evening. I hope also to be able to give you some familiarity with the operation of one of the larger group hospitalization associations, the Plan for Hospital Care of Chicago.

The group hospitalization movement as we know it today had its origin at the Baylor University in Dallas, Texas, in 1929, when a group of faculty members at the university formed a hospitalization fund into which monthly dues were paid by members of the university community, and from which funds were withdrawn to pay the University Hospital whenever a member of the group required hospital care. The outstanding feature of the fund was that it appeared to work. University people found that the monthly dues were not difficult to pay; they were delighted too when it developed that hospitalization did not in any instance require a sacrifice of family savings or financial independence. The hospital was pleased because in an important group of its patrons any possibility of loss due to unpaid bills or collection ex-

Address to the Kankakee County Medical Society, Kankakee, Ill., April 24, 1941.

pense was eliminated. Physicians in the community were relieved of the necessity of considering the family's financial status when they wished to recommend hospitalization for one of its members.

Naturally, the apparent success of the program was talked about. Hospital people in their national and sectional meetings and in their journals reviewed its operation. It was inevitable that similar schemes should be undertaken elsewhere, and in the early 1930's several such programs were inaugurated in other parts of the country. The first of these to receive wide public attention was organized in 1932 in Newark, New Jersey. It was similar to the Baylor University plan in every detail, with the important exception that membership was available to employed groups generally instead of to one group only, and several hospitals instead of only one agreed to accept payments out of the common fund. The Newark plan soon became state-wide in its operation, and in 1934 a similar program was undertaken by the hospitals of New York City. Most of you are familiar with the phenomenal growth of this Associated Hospital Service of New York, which was widely publicized as the "Three cents a day" hospitalization plan. In the four years during which more than a million persons were being enrolled in the New York plan, group hospitalization plans were organized all over the country. Cleveland, Minneapolis, St. Louis, Boston, Chicago, Pittsburgh, Philadelphia — the metropolitan areas whose hospitals at the time were suffering from the necessity of caring for families which had been victimized by the depression, were eager in their response to a scheme which appeared to offer some stabilization of hospital revenues.

Because as early as 1933 the group hospitalization movement had become a topic of vital interest to hospitals throughout the country, the American Hospital Association formed a "Council on Hospital Service Plans" whose function it was to sponsor the formation of group plans in new communities, to guide their early operation by giving them the benefit of experience accumulated elsewhere, and to protect both hospitals and public from racketeers who sought immediately to cash in on the popularity of the group hospitalization idea.

No better general statement of the principles

which today guide the operation of sixty-seven group hospitalization plans approved by the American Hospital Association can be found than the "Standards of Approval" which have been laid down by the Council on Hospital Service Plans of the American Hospital Association, and to which each of these sixty-seven approved plans must adhere rigidly in order to merit the continued support of its constituent hospitals. I think it is worthwhile here to enumerate these standards and comment briefly on the importance of each.

1. *The corporate body should include adequate representation of hospitals, the medical profession, and the general public.* While it is obvious that as the two groups most vitally affected by the operation of the group hospitalization plan, the hospitals and the subscribing membership, or consumer group, should be represented in the Plan's management, it is important to note that the American Hospital Association saw that the hospitals had a responsibility to physicians in the operation of these plans, and required that we also be represented in their management.

2. *No private investors should advance money in the capacity of stockholders or owners.* The structure of the group hospitalization plans is in every instance "not-for-profit," conforming to the corporate standards of the vast majority of our voluntary hospitals. Working capital to inaugurate the group hospitalization movement was furnished in various cities by individual philanthropists, hospitals, community chests, chambers of commerce, and other civic agencies with the result in each case that the sponsorship was community wide, with no particular group having anything to gain financially by the Plan's success or failure.

3. *Plans should be established only where needs of a community are not adequately served by existing non-profit hospital service plans.* The American Hospital Association wisely felt that no purpose would be served by duplication of effort or "overlapping" of territories.

4. *The hospital service benefits of a non-profit hospital service plan should be guaranteed by member hospitals during the life of the subscriber contract.* In each plan community, the constituent hospitals thus share the ultimate economic responsibility for delivering service to those who are paying group hospitalization membership fees. The plans differ sharply from

ordinary insurance in that subscriber benefits are expressed entirely in terms of specific services rendered by the hospital without charge to the Plan member, whereas under hospitalization insurance policies written by commercial companies the benefit is a cash indemnity which the policyholder receives as reimbursement for the expense of hospitalization.

5. *A majority of the hospitals of standing should be member hospitals in each area where a hospital service association enrolls subscribers, and arrangements should be made for the provision of service in non-member hospitals.* By this provision, the group hospitalization plans preserve the important "free choice" principle which is overlooked in so many of the proposed schemes to spread the cost of medical service.

6. *Subscription payments or dues received should be currently separated into "earned" and "unearned" income.* This standard simply specifies proper insurance accounting procedure for the protection of the public. Specifically, the American Hospital Association requires that after the initial period of Plan organization, the total of its administrative and acquisition expenses should not exceed fifteen per cent of the earned income, giving the public and the hospitals assurance of competent management and adequate protection of the funds available for hospitalization expense.

7. *The requirements for annual reapproval of the Commission shall be (a) maintenance of standards of organization and policies applied at time of original approval, (b) a substantial number of enrolled subscribers having in mind the possibilities of the area served, (c) a period of successful operation, with sound administrative procedures, (d) financial status and operations which adequately protect the interests of subscribers and member hospitals.* Through the application of these "yardsticks" by annual inspections the Association is able to make certain that the group hospitalization plans carrying its approval continue to merit public confidence.

8. *Payments to hospitals should be based on the costs of services provided to subscribers in hospitals of that community, district, or region. This does not preclude the possibility of developing public ward service plans for employed groups with low incomes, and agreements by member hospitals to provide service at rates less than the full operating costs.* Nearly half the

group hospitalization plans now approved by the American Hospital Association offer a ward service contract for low income groups as well as a contract which provides semi-private hospital accommodations.

9. *Employees of a non-profit hospital service plan should be reimbursed by salary as opposed to a commission basis. A private sales organization should not be given responsibility for promotion or administration on the basis of a percentage of premiums. Promotion and administrative policies should be dignified in nature, consistent with the professional ideals of the hospitals concerned, and in accord with economically sound practices as determined by actuarial and financial experience of the various plans.* While the group hospitalization plans do solicit membership, nothing in this procedure is a violation of our own ethical principles. Moreover, since the standard is closely followed by all the approved group hospitalization plans, promotion methods throughout are entirely consistent with good hospital practice.

10. *Hospital service provided through a hospital service plan should be determined by the practices of the member hospitals of the particular plan.* This standard is important to us as doctors. Certain hospital plans have been criticized by the medical profession because they list among their benefits such professional service as pathological laboratory and X-ray examinations, and anesthetic administration. While it is of course true that these are as much professional services as surgery, obstetrics, and the other specialties in our profession, the basis on which they are offered as benefits by the group hospitalization plans should be considered carefully before judgment is passed.

Many plans, because the hospitals of their community do not offer these services as "hospital services" for which the charge is made to the public by the hospital rather than by the professional staff member, do not include any such services among their benefits. Where such services are included as benefits of the group hospitalization plan, it has been in every instance the practice of the hospitals to make the charge for such service in the name of the hospital; the employed staff member is paid by the hospital rather than by the individual patient on a "fee for service" basis. In such cases, the group hospitalization plans have simply taken

the service which was available in the hospital and arranged for a new method of payment of the *hospital bill*. I believe it is therefore appropriate for me to say that if any professional problem exists here at all, it is a problem involving only the relationship between the hospital and its staff member. It is a problem which in every instance pre-existed the formation of the group hospitalization plan, and is not changed by the plan's existence.

11. *Hospital service plans should not interfere with existing relationships between physicians and hospitals or between physicians and patients.* While I will enlarge on this point later in discussing the operation of our own Plan for Hospital Care, I think it is important to us that the American Hospital Association has recognized our problem and is seeking in its sponsorship of group hospitalization plans to preserve existing patient-physician and hospital-physician relationships.

These, then, are the principles of operation established by the American Hospital Association and followed closely by each of its sixty-seven constituent hospital service plans. Before going on to a more specific discussion of one of these plans, I think you may be interested to know that the entire movement now embraces a total membership of nearly seven million persons, and that officials of the American Hospital Association estimate conservatively that the approved plans will pay in the neighborhood of \$30,000,000 in hospital bills during the calendar year of 1941. Certainly it may safely be said that no proposal to spread or reduce the costs of medical or hospital care has ever before received anything like the support which the hospital service plan movement now enjoys.

Because I am naturally most familiar with the detailed operations of Plan for Hospital Care in Chicago, I am going to discuss its policies and procedures with you at some length here. Of course, our operation is not precisely similar to that of all other group hospitalization plans in the various cities. The variations, however, are ones of detail rather than of principle, and to the lengths that we may discuss it here Plan for Hospital Care may be said to typify the movement.

The prime mover in the organization of Plan for Hospital Care in Chicago in 1937 was, as might be expected, the hospital group. The Chi-

cago Hospital Council, represented by a group of hospital administrators and trustees who had become interested in group hospitalization through reports of its success in other cities, raised a working capital of approximately \$30,000 by private subscription early in 1936. The donors of this fund were philanthropists interested in hospital development. The entire fund was returned in full to the original donors more than a year ago, the Board of Directors of Plan for Hospital Care and the Department of Insurance of the State of Illinois having agreed that the Plan was sufficiently well established to warrant this action.

Sensibly, the first step taken by the Plan group, after appropriate legislation was obtained in the State of Illinois to permit the formation of a hospital service corporation under the joint supervision of the State Departments of Insurance and Public Welfare, was the authorization of a study of the operation of group hospitalization plans then in existence in other cities. Hospital and subscriber contracts were drawn up according to the patterns which had been established in Minneapolis, Cleveland, New York, and New Jersey, and the Chicago Plan launched its public program on January 1, 1937. To review briefly what has been accomplished in the four years of its operation, the Plan today has eighty-one member hospitals including every institution fully approved by the American College of Surgeons in the metropolitan area of Chicago and nearby cities; the Plan has enrolled approximately 245,000 members through some 2,200 employed groups; the Plan has paid \$2,350,000 in hospital bills for some 50,000 of its members who have required hospitalization as its beneficiaries.

Embodied as benefits in the contracts issued by Plan for Hospital Care to its subscribing members are all the essentials of hospital care which are commonly available in general hospitals. These include: hospital bed and board in the semi-private type of accommodation, use of the hospital operating or delivery room, anesthetics and the administration of anesthesia where such service is performed by a salaried employee of the hospital, ordinary drugs, dressings and medications, laboratory and X-ray examinations which are necessary to diagnosis of the condition requiring hospital care, and emergency out patient service to accident victims.

Under the terms of its contracts, Plan for Hospital Care offers these services to its members free of charge, and without any limitations on the quantity of service required or the charge ordinarily rendered by the hospital for such services. The contract between Plan for Hospital Care and each of its participating member hospitals stipulates that the "subscriber services" I have just enumerated shall be rendered to Plan members admitted to the hospital on the request of duly qualified physicians, and that the hospital shall accept as payment in full for such service an agreed per diem reimbursement which is paid directly from the Plan to the hospital.

Important to us as physicians are the following specific provisions of the subscriber and hospital contracts issued by Plan for Hospital Care:

1. Both contracts contain the following provision: *"Hospital care shall be rendered by this Plan only upon the request and recommendation of a physician who is a member of the medical staff of, or permitted to practise in, the hospital selected by the member, and any hospital care hereunder shall continue only during such time as the member is under treatment and care of such a physician."*

Thus the Plan does not compel any hospital to accept a Plan patient who for any reason might not be acceptable to the hospital as a private patient, nor does the Plan provide the opportunity for any physician to attend a patient in any Plan hospital unless such physician qualifies to practise in that hospital under the terms of its own staff rules and regulations. Further to effect the same preservation of existing hospital-physician relationships, the Plan contracts stipulate that *"The member may select any hospital which is a Plan hospital when applying for hospital care. All hospital care to be furnished by said Plan hospital is subject to its rules and regulations, including the rules and regulations governing admittance."*

2. A further stipulation of every contract issued to a subscriber by Plan for Hospital Care which is incorporated into each of its participating member hospital contracts states that *"This Plan does not confer upon any hospital any right to select a physician for any member. The member shall be at liberty to select his or her physician, provided only that such physician is permitted to practise in the hospital to which*

the member is admitted, and no provision of the subscription agreement shall interfere with the ordinary relationship between the member and any such physician."

3. Specifically to incorporate into Plan for Hospital Care the pertinent approval regulation of the American Hospital Association, the Plan contracts state that *"Hospital care does not include the professional services of any physician, or special nurses and their board. . . . Separate arrangements must be made with them, by the member, for payment for such services."*

The contractual provisions of Plan for Hospital Care which I have just quoted are typical of all group hospitalization plans operating under the sponsorship of the American Hospital Association. Plan for Hospital Care, however, goes further than this in its efforts to support hospital standards and the ethical principles of the medical profession. The bylaws of the Plan specifically provide that no hospital may become a participating member hospital in Plan for Hospital Care unless that hospital shall have the approval of the American Medical Association and the American College of Surgeons. There are in our community, as many of you know, several institutions which do not meet the standards established by these regularly constituted hospital approval authorities. It is our dual purpose in making full hospital approval requisite to institutional membership in the Plan both to protect our subscribing membership from the hazards of care in sub-standard hospitals and to uphold and promote the professional standards established by ethical physicians in association with properly accredited institutions. The unethical practitioner has no place in the operation of Plan for Hospital Care. It is not generally known to physicians even in our own community, but it is a fact that individuals and groups who indicate that they might wish to seek care from such unethical practitioners or in such sub-standard institutions as we have mentioned are urged not to become members of Plan for Hospital Care. It is also true that Plan for Hospital Care is the only group hospitalization program of any kind operating in the metropolitan area of Chicago which seeks in any way to distinguish between approved and sub-standard institutions. Commercial hospitalization insurance companies without exception pay equal indemnities for care rendered in ap-

proved institutions and for care that may be rendered in any building labeled by its own management as a "hospital."

Nor are these the only details in which Plan for Hospital Care seeks to support the medical profession. In order to elaborate, it is necessary for me to explain that the hospitalization benefits of Plan for Hospital Care are denied under certain conditions. These few restrictions are a necessary protection against "raids" on Plan funds by the occasional person — well known to all physicians — who considers it his constitutional right to get something for nothing.

Disposition of claims which are questionable under the terms of any of these "exclusions" in the Plan contract may be made with justice only on the advice of or in consultation with the Plan member's attending physician. In the operation of the Plan's hospital or "claims" department, it is our practice to consult freely with physicians whenever such a question exists which is not answered conclusively in the routine information accompanying the hospital invoice to Plan for Hospital Care. In most instances, the physician's judgment is a determining factor in the allowance or denial of Plan benefits. Moreover, we are scrupulously careful in all such activity to withhold from the patient any information to indicate that his case has been settled on the basis of information received from his physician. We appreciate that our method of operation, if carelessly or thoughtlessly administered, might in some cases put the physician "in the middle" and result in a disturbance of his relationship with his patient. Plan for Hospital Care, as I mentioned a moment ago, has paid some 50,000 hospital bills. Approximately five per cent of these cases, or in the neighborhood of 3,000 cases, involved consultation with the patients' attending physicians. In no case that I know of have we been accused of any action contrary to the best interests of the physician in attendance on the patient who was a Plan member. I think you will agree with me that this result could not have been achieved accidentally. Every hospital claim is considered for approval by the Medical Director or Assistant Medical Director of Plan for Hospital Care; thus no physician is called into conference on a Plan case until the record of that case has been reviewed by a duly licensed and qualified physician. No conclusion is reached

until the patient's physician and the Plan's physician are in agreement on the proper disposition of the case in question.

I mentioned a moment ago that approximately five per cent of our hospital admissions, which are running currently in excess of one hundred a day, involve some question of eligibility for benefits. It may be interesting to you to know that ultimate rejections comprise less than two and one-half per cent of all admissions, and that such rejections include those whose memberships are not in good standing at the time of admission to the hospital. Thus it is apparent that we look at our whole claims operation with a liberality not commonly associated with insurance operations. This liberality we consider to be entirely consistent with the objectives of our organization and its not-for-profit corporate structure. No one's interest is served by the rejection of a claim for benefits which can be said with justice to come within the benefit provisions of the Plan contract. On the other hand, we feel that we are not properly discharging our obligation to our membership if we permit benefits to be paid on cases which are clearly ineligible; this, we believe, constitutes a misuse of funds entrusted to our care. My own experience in discussing Plan cases with literally hundreds of practising physicians in the Chicago area has been a gratifying substantiation of my belief that physicians generally render professional judgments on the basis of fact rather than feeling. I have found no particular bias in favor of the patient which is used to influence our disposition of a claim in the patient's favor contrary to fact. We ask for impartial professional judgment, and I am confident that impartial professional judgment is what we get.

These are the guiding principles of operation in our Plan for Hospital Care. These are the ways in which it seeks to relieve the community of the burden of hospitalization expense. More importantly here, these are the ways in which the plan operates in the interests of organized medicine. You will be interested to know that approximately half the approved group hospitalization plans operate under the specific approval of the appropriate city, county, or state medical body. To this extent, at least, physicians have passed favorable judgment on this particular method of spreading the costs of illness. As a physician myself, I don't submit to anyone's

persuasion in arriving at my judgments — particularly in matters relating to the practice of medicine. As a representative of Plan for Hospital Care and the entire group hospitalization movement, I do not wish in any way to persuade or urge a favorable judgment from you. I have sought only to explain, with the certain knowledge that you do not judge except on the basis of fact. I should welcome any inquiries which might give me an opportunity to explain in further detail what we are seeking to do and how we are seeking to do it.

Correspondence

SCIENTIFIC EXHIBITS AWARDS-1941 ANNUAL MEETING

The Scientific Exhibits at the 1941 annual meeting of the Illinois State Medical Society were the finest that have ever been displayed at an annual meeting. Many important phases of medicine and recent progress were featured in this outstanding exhibit.

The Committee on Awards had much difficulty in selecting the best exhibits in the different classes, and their report is herewith submitted.

CLASS I. Individual Scientific Work.

SILVER MEDAL.—Clayton J. Lundy, M.D.
Heart Sounds — Clinical Evaluation.

BRONZE MEDAL.—L. R. Dragstedt, M.D.,
O. C. Julian, M.D., D. E. Clark, M.D., and
C. W. Vermeulen, M.D.

Lipocaic. A Fat Metabolizing Hormone of
the Pancreas.

CERTIFICATES OF MERIT.—

L. R. Limarzi, M.D., R. M. Jones, M.D.,
and J. T. Paul, M.D. Sternal Marrow
Studies.

Joseph A. Tuta, M.D., Breast Tumors, Kodachrome Lantern Slides and Museum Specimens.

CLASS II. Educational Exhibits.

SILVER MEDAL.—Howard L. Alt, M.D.,
Quin B. DeMarsh, M.D., and William F.
Windle, Ph. D. Deprivation of the infant
of its Placental Blood. Early and Late
Effects on the Blood Picture.

BRONZE MEDAL.—Arkell M. Vaughn, M.
D. and Robert E. Lee, M.D. Ambulatory
Treatment of Varicose Veins and Ulcers.

CERTIFICATES OF MERIT.—

Milton G. Schmitt, M.D. Treatment of Inflammation by Short Wave Diathermy.

Erwin P. Zeisler, M.D., Cutaneous Tumors — Benign and Malignant.

Casper M. Epstein, M.D., D.D.S. Fractures of the Facial Bones.

Leo L. J. Hardt, M.D., Frank DeTrana, M.D. and LeRoy H. Sloan, M.D. Gastroscopy and Peritoneoscopy as Aids to Diagnosis.

Hart E. Fisher, M.D., Lewis H. Ruttenberg, M.D. and George H. Irwin, M.D. Periodical Medical Examinations.

Bertha Van Hoosen, M.D. History of Illinois Medical Women. Women in Medicine. Mrs. Arthur I. Edison. Women's Field Army of The American Society for the Control of Cancer.

George B. Callahan, M. D. Burns Treated with Cod Liver Oil Ointment — Tissue Paper Dressing. A Simple Safe Treatment in Minor and Extensive Burns.

May 25, 1941

Harold M. Camp, M.D.

Monmouth, Illinois

Dear Doctor Camp:

On page 363 of the last issue of the Illinois Medical Journal (May, 1941) there is an editorial credited to Charles J. Whalen, M. D., with this title: "The Cure Of Malignancy." In as much as the editorial, which consists of about 2,000 words, was written by me while I was Assistant Editor of the Journal, kindly give this letter the position it should have in the Journal to correct the error.

I have a letter from Dr. Whalen dated July 6, 1938, in which he asked me to write an editorial on "The Cure Of Malignancy." At that time the editorial was written by me, and now appears verbatim in the May issue of the Journal. Three copies of my editorials were always made; one was sent to Dr. Whalen and I kept two of them. If these two copies are compared with the typewritten copy you have in your possession, it can be seen that they are identical.

The editorial was not "completed (by Dr. Whalen) only a few days before his death." (See Italic letters on page 360 of the May Journal.)

Very truly yours,

Bernard S. Maloy, M.D.
7008 Oglesby Avenue

Original Articles

PREVAILING MEDICAL PROBLEMS IN ILLINOIS

PRESIDENT'S ADDRESS

CHARLES H. PHIFER, M.D.

CHICAGO

Dr. Templeton, Members of the House of Delegates of the Illinois State Medical Society:

I wish to take this occasion to thank the members of the House of Delegates for the distinguished honor which you have conferred upon me. Particularly am I grateful to the Chicago delegates for this esteemed recognition and your vote of confidence. It is a distinguished pleasure and privilege to accept this responsibility. Those of us who are elected for a very limited time to preside over our Society are still greatly interested members of the medical profession, and are indeed very anxious to do all that we can do to promote the interests of scientific medicine, improve the care of the sick, protect the health of the well, and cherish and foster the interest of the profession.

It is most constructive to review the transactions of our Society during its first century and to note the great progress that has been made in its many fields of endeavor. Primarily organized for its scientific advantages and interchange of ideas and knowledge, the expansion of its educational features has known no bounds. The interest in the scientific programs of the different divisions has developed to a degree that it is almost impossible to find a place for presentation of all the papers within the allotted time of our meetings. Postgraduate assemblies have been carried into the rural districts to members of our county societies, and our Educational Committee by means of radio, press, mail, schools, clubs and other organizations, has given an inexhaustible amount of information to the

public on matters pertaining to the preservation of health. The scientific exhibits are distinctive features of the annual meeting and command the attention of scientific medicine.

Every committee of our Society carries some important function and responsibility. All the work of the Illinois State Medical Society is not done by its officers and committees. Each individual member as a family physician plays an important role in American medicine.

In the last ten years of the past century this country has witnessed the greatest social and economic upheaval in the history of the world. The economic status of the majority of people has been changed. During this interval there is no one who has carried a greater burden with less remuneration than the members of the medical profession, and no one appreciates more than the members of the profession what a depression means.

In the days immediately ahead of each of us we as a profession have a heavy responsibility of sharing in a far reaching decision which affects not only our own lives but those of our children and our children's children. As we professional men look over this troubled world of today, the hardest problem that confronts us is the problem of the future. The past is gone, the future is uncertain. It is obvious that the guidance of the future must be found in the past, that the clue to the unknown must be discovered in the known. In recent years we have witnessed all kinds of efforts on the part of the federal, state and local government to relieve unemployment. Many types and kinds of governmental projects have been instituted, the latest military defense industries. Each of these has no doubt had some effect on lowering the number of unemployed. But regardless of the number and kind

there still remains a large number of unemployed, who because of age, color, sex, health, lack of skill can only hope to find employment in a general recovery of business. It is the opinion of many minds that with millions absorbed in defense industry sudden cessation of this enterprise would cause a calamity greater than that of the year 1930. There are at the present time over 967,000 people enrolled in five public assistance programs in the state of Illinois. Experience has demonstrated during the past ten years that the best type of medical care has been rendered among the poor where the client has had the free choice of his physician. Precedence for medical care of these clients was established under Federal Rules and Regulations No. 7. In this legislation the client was given the free choice of his or her physician. These rules have proved to be one of the most constructive pieces of legislation that was ever established regarding medical care of the poor. In view of the fact that the problems of this depression and unemployed are now about eleven years old, and that the status of governmental responsibility for these clients is constantly changing, new problems on medical care are being created which are obviously greater in one county than another. The variety and type of these problems need the constant attention of the members of our Society.

As evidence of these facts let us recall that in the year 1936 the legislature in the State of Illinois transferred the responsibility for the distribution of relief in this state from one administrator in each of 102 counties to 1400 supervisors. While this legislation did not state that these clients should not have the free choice of physicians, many supervisors placed their medical care with the county physician. This is, however, a civic problem that should be presented by the members of the medical profession to the supervisors in their respective communities. It is sincerely hoped that in the interest of suffering humanity the poor may still be granted the privilege of selecting their physicians. To accomplish the latter will require careful study, diplomacy, and cooperation on the part of the members of our Society.

Accordingly, it is my desire to establish a reliable advisory committee on medical care in each county, whose function it will be to cover the questions of medical care of the various types

of clients on public assistance. It is my opinion that these can best be organized through your Councilor districts coordinating with a central or Council committee. The members of these committees should be mature physicians, well qualified professionally, likewise well informed on the needs and care of the sick, honest, fair in judgment, willing to sacrifice time in behalf of the cause, and who will take pride and interest in these civic problems so that they may reflect credit on the medical profession.

In discussing the question of compensation for medical service rendered these clients, we should remember that they are classed as indigent and are in reality one of the lowest income groups, that the remuneration for medical service should be considered from this standpoint rather than from that of the value of the service rendered. The compensation should be uniform throughout the state.

In closing, permit me to state that medicine is probably the most liberal of all the professions, that it has made its greatest progress during the past century, that the physicians of this country may always be proud of the part they have played in the advancement of medical knowledge. In no country in the world have the achievements in medicine been so renowned as they have been in the United States. Let us sincerely hope that free enterprise in medicine may always remain.

DIFFERENTIAL DIAGNOSIS IN ACUTE ANTERIOR POLIOMYELITIS

SIDNEY O. LEVINSON, M. D.

Director, Samuel Deutsch Serum Center
CHICAGO

(Editor's Note: This is the third of a series of four articles on poliomyelitis, appearing monthly in the Illinois Medical Journal).

The differential diagnosis is best considered from the viewpoint of the various stages through which the disease passes.

(A) *Systemic Stage.* Acute upper respiratory infections, acute pharyngitis, and gastro-intestinal disturbances resemble the onset of poliomyelitis. Since the diagnosis of infantile paralysis cannot be made in this stage, no differential diagnosis can be made. The patient should be observed and, if the disease progresses, a definite decision may be made.

(B) *Stage of Meningeal Irritation.*

1. Conditions associated with neck and back rigidity —

(a) Suppurative Meningitis (meningococcic, streptococcic, staphylococcic, and pneumococcic): the disease is more severe and fulminating. Petechiae may be present. There may be preceding infection of the lungs, ears or mastoids. The spinal fluid is cloudy and contains 1000 or more polymorphonuclear leukocytes; from it organisms may be isolated on culture, smear or both. The spinal fluid sugar is diminished or absent.

(b) Infectious Encephalitis: There may be a recent history of measles, mumps, chicken pox, or vaccination against small pox. Disorientation, convulsions, stupor and coma with spasticity of the extremities are frequently observed. The sugar content of the spinal fluid may be increased.

(c) Toxic Encephalitis: There may be an accompanying pneumonia, dysentery or other acute infection. The spinal fluid usually does not show an increased cell count.

(d) Lymphocytic Choriomeningitis: This disease simulates poliomyelitis so closely that it is almost impossible to make a differential diagnosis except by isolation of the virus from the patient's spinal fluid or blood or by detection of the development of specific neutralizing bodies. It seems that this condition occurs only occasionally in clinically recognizable form and is very much less frequent clinically than is poliomyelitis.

(e) Tuberculous Meningitis: This condition is usually insidious in onset. A history of contact with tuberculosis, x-ray of the chest revealing miliary involvement, and a positive Mantoux test in infancy or childhood are helpful in establishing a diagnosis.

2. Extremity Pains and Tenderness —

(a) Injury: This is frequent in childhood as a cause of pain and tenderness. History and physical examination usually determine the cause of the symptoms. The spinal fluid is normal.

(b) Acute Rheumatic Fever: This is frequently mistakenly suspected in the presence of an outbreak of poliomyelitis. There is no neck and back rigidity and the pain is associated with movement of the joint. The reflexes are unimpaired and the spinal fluid is normal.

(c) Trichinosis: History of eating uncooked pork, associated gastro-intestinal symptoms, high

leukocyte count, an eosinophilia, absence of meningeal symptoms and normal spinal fluid differentiate this disease from poliomyelitis.

(C) Paralytic Poliomyelitis.

1. Acute Rheumatic Fever: This condition is commonly confused with poliomyelitis when the pain is so severe that the child refuses to move the extremity. This paralysis, however, is spastic, the muscles fixing the joints to prevent movement in contrast to the flaccid paralysis of poliomyelitis and painless joint movement. The spinal fluid is normal.

2. Other pain and joint inflammation: Suppurative arthritis, osteomyelitis, traumatic arthritis, and epiphysitis produce a pseudo-paralysis. Here likewise there is spasticity of the muscles and resistance to joint motion. The spinal fluid is normal.

3. Scurvy: This also is a pseudo-paralysis with spasticity and resistance to movement. Pressure on the bones is exquisitely painful. There is associated malnutrition, bleeding gums and characteristic x-ray findings in the bones. The spinal fluid is normal.

4. Radiculomyelitis (Guillaine-Barré Syndrome): There is paralysis of the extremities, marked pain and tenderness. Very often sensory disturbance may be found. The spinal fluid shows a very high protein content but no increase of cells.

5. Peripheral Neuritis: This may follow diphtheria or other acute infection or some drug or poison which may be elicited by careful history. Usually there are areas of sensory disturbance as well as motor involvement. The spinal fluid is normal.

6. Acute Encephalomyelitis: This is associated with a number of virus diseases. These conditions are more acute and more fulminating than is seen in poliomyelitis. The more severe involvement of the brain is reflected frequently in disorientation, convulsions or stupor. The spinal fluid findings may resemble those of poliomyelitis and an absolute diagnosis is frequently difficult without the laboratory identification of the specific virus.

7. Other conditions: Birth palsies, spastic paralysis and congenital deformities affecting the gait can all be differentiated by a careful history of birth and development and by a careful examination.

THE IMMEDIATE CARE OF INDUSTRIAL INJURIES

THOMAS C. DOUGLASS, M.D.

CHICAGO

In 1936 Koch and Reid advocated strongly a radical change in our treatment of wounds. Since this time a number of other workers have contributed to our knowledge of this subject, notably Mason, Estes, Reid and Stevenson, and more recently many others.

The essentials of the treatment recommended by these workers consist in a number of points: first, to do no harm, which means the prevention of injury of the tissues, the avoidance of introducing any irritating substance into the wound; second, to leave no contaminated tissue; third, to remove all foreign bodies; and after careful cleansing with soap and water, and lavage with normal saline solution, fourth, to close the wounds and, fifth, to keep them at rest until they have healed. The rationale of this treatment is based on a number of fundamental considerations: first, that a wound contaminated does not become invaded by bacteria for six hours; that if this wound is then washed carefully and no irritating antiseptics are introduced it may heal by primary intention without signs of infection. The deletion of antiseptics from our armamentarium depends on the idea that no antiseptic will destroy bacteria without also destroying some tissue cells, which certainly are as delicate and sensitive to the irritant as are bacteria; it depends also on the fact that none of these antiseptics will destroy all germs in wounds, so that the combination of bacteria and devitalized tissue produces the ideal nidus for the growth of bacteria.

The success of this method of therapy has been so marked that some ten months ago the industrial concern with which I am connected decided to use this technique in the handling of our wounds and burns. In order to use this effectively it was necessary for us to change our first aid practices radically. All antiseptics have been removed from the first aid kits, and only sterile dressings, splints and triangular bandages are now supplied. The standard kit, as now equipped, consists of a thick 8 x 12-inch dressing,

which will cover a large area; a 4 x 4-inch dressing with a tail bandage, and finally smaller dressings, chiefly 1-inch adhesive compresses. The reason for using larger dressings in these kits is that the tendency of the layman is to apply a smaller rather than a large enough dressing to cover a wound. We would prefer, of course, that all the extremities of a wound be covered carefully.

To justify this change in procedure and practice with many of our men who have been thoroughly trained in first aid is not an easy task, but it has been easier, I believe, than the task of convincing doctors of the necessity for a change. The only justification for this presentation in the light of the work that already has been published on this subject is that in industrial cases we have the opportunity of controlling the injured party from the time the injury occurs until healing is complete — an opportunity not enjoyed by many men seeing such cases in private practice. It must be kept in mind, in organizing any such first aid practices, that the work is to be done by laymen, that the instructions must be clear cut, definite, and what to do in any emergency must be clearly stated. The simpler the directions the more easily they are carried out.

The care of wounds has received so much attention the public has been educated to the point that the average layman literally runs to the nearest medicine cabinet, drugstore or doctor to have his injured member doused with iodine, mercurochrome, merthiolate, or some other equally powerful or colorful mixture at the earliest possible moment. Having satisfied this requirement he promptly neglects the injury, unfortunately only to find later he has an infection, prolonging his disability or, at best, a rather broad and unsightly scar. Friedrich has shown that bacteria do not penetrate the tissues for the first six hours and that such hasty and precipitate action is hardly warranted.

Starting with our first aid instructors and then extending this information to other first aid groups throughout the company, we have been able to get fine cooperation in inaugurating this plan of attack.

The Care of Wounds. The first consideration in the care of wounds in the hands of the layman is the prevention of further contamination. This may be accomplished adequately by the immed-

Presented before the Joint Session of the Section on Surgery and the Chicago Society of Industrial Medicine and Surgery, 101st Annual Meeting, Illinois State Medical Society, Chicago, May 20, 1941.

iate application of a sterile dressing, supplied in kits as mentioned above. The second consideration is the control of hemorrhage, which we believe is most adequately handled by a pressure dressing over the wound. This can be done simply with the use of the large pad supplied and a triangular bandage. It is only in the exceptional case that a tourniquet needs to be used to control hemorrhage. It is well known that tourniquets may do more harm than good and that they rarely are necessary. I need only call your attention to the traumatic cases all of you have seen in which even so large a vessel as the brachial artery is severed and, by the contraction of its muscular coat, completely closed by the time it reaches the operating room. The third consideration we teach our first aid men is that the part must be immobilized so that no further damage may be done. Having been cared for under these conditions, the injured employe is sent to the doctor or hospital, where after an examination to determine the extent of the injury the wound is cleansed with soap and water, irrigated, debrided, and primary closure is accomplished.

Of 350 cases taken care of in the past ten months of this practice we have had only two minor infections. In these two cases a piece of necrotic tissue finally was removed; this indicated incomplete debridement at the time of closure. Because we have widely separated workmen, many of whom are more than an hour or so away from a doctor's care, it was necessary that we institute something more than this plan to make it practical. To do this we have said that minor scratches and abrasions of not too great extent may be cleansed and cared for on the job by the first aid man in that group. The man is asked to wash his hands carefully and is given a sterile 3x3-inch piece of gauze with which he is to wash the wound using soap and water for five minutes by the clock. Of a number of such injuries received on the job we have had only one infection in the last ten months, and in that case the employe spent the second and third days trying to soften the crust that formed over the abrasion by rubbing cold cream into the crust with his fingers.

Burns. Burns can be handled in a similar fashion, and we have adopted the method outlined by Allen, which in substance means the proper cleansing of this wound by soap and

water, the application of a non-adherent dressing, pressure, and a splint. We have asked our men in the field to apply a sterile dressing to a burn just as they would to a wound and to send the injured worker to the office, the dispensary or a hospital. None of the men thus far treated in this fashion have offered any complaint about pain or discomfort. Burns covering a larger area are treated in the same fashion with the single exception that a doctor may be summoned to administer an opiate before the employe is moved. The man is then moved by ambulance to a hospital, where the above procedure can be carried out.

Fractures. The care of fractures undoubtedly is better handled ordinarily, and I believe we will all agree that these cases must be splinted before moving. The only contribution we have to make in the care of these injuries is a simple device that makes it possible for us to have splints available for men anywhere in the city of Chicago. Six patrol cars (originated for other purposes) have been equipped with two-way radios and have been supplied with arm splints and traction splints for the leg as well as a large first aid kit containing dressings. These cars are always within fifteen to thirty minutes of any part of the city.

Head Injuries. The care of head injuries has meant, in our case, the simple instruction, "Leave the patient quietly at the site of the injury until a doctor has seen him and has advised whether or not the man should be moved, and how far."

In closing, I would like to say that we have insisted that men who have such injuries be sent home if it seemed to the doctor taking care of them that there was any indication for doing so. This has resulted in the last year in almost twice as many lost-time accidents as in the previous year. The interesting fact about this is that despite the increase in the number of lost-time accidents, the actual number of days lost has decreased some 500 days.

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DISCUSSION

A. S. Leven, M. D. (Chicago): Mr. Chairman, Ladies and Gentlemen: There is no doubt that the treatment of minor traumatic wounds, minor infections and minor burns constitutes the largest bulk of office practice for the average industrial physician and surgeon. Of course the aim of all treatment is not only to achieve functional and plastic results but also to shorten the period of partial disability. It is therefore timely that some sound precepts on treatment of traumatisms are put forward. Dr. Douglass has tried to intimate some of them.

However, I think there should be added that every wound not made with surgical intent should be considered as an already infected wound and treated and taken care of as such.

There are only two methods of cleansing wounds or sterilizing them, namely: By mechanical or chemical methods or means. Mechanical procedure means cleansing with soap and water and by non-sacrificial debridement. Chemical procedure means to apply to the wound some antiseptic and, as you know, there has been quite a routine at the present time to do away with antiseptic cleansing.

As to the antiseptics, we must remember that proper mechanical cleansing is the basic preliminary and we can't rely solely on any one antiseptic despite propaganda, colorful appearance or clever advertising because abundant experience has shown in some twenty thousand first aid cases that any antiseptic capable of killing organisms in vitro also kills the tissues and thereby renders inert the very inherent qualities we seek to promote and protect.

In every stage and in every age there has been a grand hurrah as to some new antiseptic guaranteed to solve this problem of wound infection. We are regularly passing through a phase in which gaudy colors are the vogue and we are importuned to paint or daub our wounds because the present styles of organisms prefer brighter shades than did their predecessors. This is chromatic rather than traumatic surgery! It has little or no real lasting value.

Drainage is also important, but drainage with gauze should be avoided because it acts as a plug and there you are practicing taxidermy and not traumatic surgery.

I think that rest, elevation and infrequent dressings in the treatment of first aid wounds are important, rendering wound-healing more melodious and less malodorous.

"A real or fancied crisis threatens and unless the profession realizes its own danger and voluntarily makes such changes in medical practice and procedure as seems more in accordance with present-day concepts, government agencies will interfere."—Dr. John Finney, professor emeritus of surgery at Johns Hopkins made this crisp statement of fact in the foreword of Dr. Bertram M. Bernheim's book, *Medicine at the Crossroads*.

FRACTURES OF THE LOWER FOREARM AND WRIST

RICHARD J. BENNETT, JR.

CHICAGO

Fractures of the lower one-third of the forearm and wrist are of rather frequent occurrence. There were 73 cases of fractures of the lower forearm and 17 cases of fracture of the carpal bones, a total of 90 cases for the years 1936 to 1940 inclusive. Eighty-seven of the 90 cases were males. Falls on the outstretched hands were responsible for 65 per cent of the injuries and 35% were due to direct injury. The patients were seen within a few hours of injury and in all cases except where shock or some other serious complication contraindicated, all of these fractures were reduced under anesthesia within a few hours from the time they were first seen.

LOWER FOREARM FRACTURES

Antero-posterior and lateral x-rays are valuable in the diagnosis and treatment of fractures of the lower forearm. Even though the diagnosis is quite evident by inspection and palpation, x-rays are invariably taken before reduction is attempted. After the fracture has been reduced and the splint or cast has been applied, a second x-ray is taken in the antero-posterior and lateral views. If the case proceeds satisfactorily and there are no complications in the plan of this patient, no further x-rays need be taken. If there is any doubt at any time, other antero-posterior and lateral x-rays are taken and the necessary procedures carried out. It is known that during the second to third week, deformities come to view which in previous x-rays appeared to be in good alignment. The classification of the fractures based on the x-ray diagnosis is as follows:

Type of fracture	Cases
Epiphyseal separation	1
Simple fractures of radius and ulna	39
Comminuted fractures of radius and ulna	29
A reverse Colles fracture	1
Compound fracture of the ulna	3

Anesthesia was used in all cases where there was impaction, comminution or any displacement of the normal relation of the bones. The

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anesthesia of choice in by far the greater majority of the cases, was intravenous pentothal sodium. A full anesthetic used in these cases within a few hours of the occurrence of the injury and in most cases before muscle spasm had set in, made the early satisfactory reduction of the deformity, in most cases, a rather simple procedure. In those cases with marked deformity or comminution, a satisfactory reduction of the fragments, checking under the fluoroscope, was a rather difficult procedure.

The plan for reduction is based on the primary x-rays. In all compound wounds, the wounds are primarily debrided and closed. In cases of simple fracture, the forearms and hands were placed in splints in pronation. In cases where there was impaction including shortening of the radius and widening of the wrist, the impaction was broken up. When the bones were reduced to their normal relation, the forearm was placed in a firm pronation, firm palmar flexion and firm ulnar deviation. Firm reasonable pressure used in the reduction does away with the possibility of peripheral nerve involvements later. In the reverse type of Colles fracture, a cock-up splint was used. It was not found necessary to use skeletal traction in any case.

The type of immobilization used depended upon the severity of the fracture and the age of the patient. In simple fractures, the posterior molded splint was quite satisfactory, in other cases the palmar flexion splint was used. In the various impacted, comminuted or displaced fractures, the sugar-tong plaster splints or the circular cast immobilizing the entire forearm, wrist and hand was used. The casts immobilized the elbow, the wrist and included the lower third of the arm and the metacarpals. In circular casts, the cast was split throughout its entire length on the flexor surface of the forearm and wrist and then was examined at frequent intervals during the first 24 hours as prophylaxis against complications such as a Volkmann's contracture, which complication was not encountered in any case in this series.

The length of time of immobilization was not routinely fixed, every case being treated individually. In simple fractures, immobilization was used for from 4 to 6 weeks. In the more serious fractures where a circular cast had been used and then split, the cast was not removed

under four weeks time. In many cases it was five and six weeks before the cast was removed for the first time. The cast had been trimmed carefully at the base of the fingers so that the patient could carry something around in his hand such as a 1½ inch soft rubber ball, the use of which keeps the fingers and tendons in good condition. Frequent raising of the entire upper extremity was suggested. In this manner complications were kept at a minimum. In any case where the splint or cast was removed and there was any doubt as to whether or not the fracture was healing satisfactorily, another antero-posterior and lateral x-ray was taken. If any pathology was found, appropriate measures were instituted immediately to correct the condition. In this manner, following no set rule but making every case a law unto itself, very satisfactory results were obtained in the different age groups. In other words, two men of exactly the same age but with different types of fractures, different complications along with the fractures, require different periods of time for healing.

Once the fracture has healed satisfactorily to a certain point, physiotherapeutic measures are instituted in the form of whirl-pool baths, the short-wave diathermy, massage, passive and active motion, and the Morton-Smart muscle stimulating machine. In most instances the full co-operation of the patient brought about a much more satisfactory and more complete return of function.

RESULTS OF LOWER FOREARM FRACTURES

Type of fracture	Excellent	Good	Fair	Poor
Epiphyseal separation	1			
Simple fracture radius and ulna	26	8	3	2
Comminuted fracture radius and ulna	4	14	7	4
Reverse Colles		1		
Compound fracture ulna	1		1	1
	32	23	11	7

FRACTURES OF THE CARPAL BONES

Seventeen patients showed 21 fractures of the carpal bones. Fractures of the carpal bones are unfortunately not diagnosed at the time of primary injury. In some cases it seems necessary for a certain amount of bone absorption to take place at the site of the fracture before the diagnosis can be made even with x-ray pictures of the carpals in different positions. In fractures of

the carpals, it is necessary to put the fractured carpal bone in the position of maximum use and not under tension. The question of a proper blood supply, in many instances, the difference between success and failure with a snug cast used for immobilization. In order to get union in the carpal bones, immobilization in pronation, slight extension along with full abduction of the thumb has been used. The plaster cast, circular in character should include the elbow, the metacarpals and the abducted thumb.

Many methods of treatment have been advised for carpal bone fractures. If conservative measures fail then partial removal of the bone, total removal of the bone, drilling the bone, and bone grafting have been advocated. In this series there were two open reductions for the removal of bone fragments.

The length of time fractured carpal bones should be immobilized is at least six to eight weeks with the fingers entirely free so that the tendons can be kept moving.

RESULTS OF CARPAL BONE FRACTURES

Bones	Times	Involved	Excellent	Good	Fair	Poor
Fractured						
Scaphoid	11	3	2	2	4	
Semilunar	2	2				
Cuneiform	2	1	1			
Pisiform	1		1			
Trapezium	1					1
Trapezoid	1					1
Os Magnum	1					1
Unciform	2	1				1
	21	7	4	2	8	

208 S. La Salle St.

"MORTGAGED HIS OWN HEART BEATS"

The medical profession does not ask for praise but only that it be permitted to proceed with the present arrangement of personal relationship between the doctor and the patient, the doctor doing the charity work which has been his right and heritage since the beginning of medical history and has proved so fruitful in relieving the sick poor and in the tremendous advancement in the science of healing. The indigent sick is our ward.

When society has failed to provide for his economic needs, when his neighbors have given him scant food, the doctor has heard his midnight call for help and has given freely not only of his medical skill but, of far greater value, he has mortgaged his own heart beats and has infused them with the very spirit of God himself that his patient might have renewed life.—C. E. Burford, M.D., president-elect, Missouri State Med. Assn.

TO AVOID PAST MISTAKES OF MILITARY MEDICINE

If or when war comes, every million men mobilized need 7,500 doctors drawn from civil practice. Dentists, nurses, sanitary engineers are needed too. In the mobilization of four million during the last war, more than a fourth of the effective medical men of the country were called to the colors. Whole counties were depleted of doctors. Many medical schools were almost put out of business, because the best men left for military duty. We should not repeat these mistakes. Today we should investigate who should go, who should stay to practice, to teach, to operate, an essential civilian service. We have no machinery now to do this. A coordinator of medical and health preparedness should create the machinery, working with the public health agencies, the schools and the medical profession itself.

We have a shortage of laboratory technicians. Intensive courses would provide more. Universal training would deplete the ranks of medical students; yet we need doctors each year to replace obsolescence. Some medical and other scientists are vastly more valuable to the country working on their present jobs than they possibly could be in the Army or Navy. Here are other tasks for medical planning through a coordinator.

There is urgent need for standardization of many medical and surgical procedures for emergency application in time of war. Much wasted effort also could be saved through standardization of medical equipment which would be of value in civilian no less in military practice. Medical science grows, expands, opens up new possibilities for saving life and building strength. In the application of its basic sciences, medical practice must expand also to meet the new demands of the nation for self-preservation.

In the dictatorships, the state is served by sacrifice of the individual and enslavement of the men of science. If our democracy is to stand, we — as doctors, as health officers, as health workers, as citizens — of our own free will, because we know it is necessary, must put medical science to work now, fully, to make our men as good as our machines.—Thomas Parran, M. D., Surgeon General, U. S. Public Health Service.

"Doctors are short-lived. Their average expectancy of life is the lowest of the professional groups. They are valuable men in every community. We are not sure there is anything we can do about this but recognize it — and appreciate it. If socialized medicine and surgery becomes the rule, as some reformers would have it, we then would appreciate the family doctor."—From the Lapeer County (Mich.) Press.

In 1859 Mr. Richard C. Downing, Superintendent of Sanitary Inspection of New York City said, "I consider it very unjust to give the health inspector of the City of New York power to quarantine a house where there is small pox."—Better Times.

Illinois State Medical Society

Chicago, May 20-22, 1941

HOUSE OF DELEGATES

The first session of the House of Delegates of the Illinois State Medical Society was held in the Palmer House, Chicago, Tuesday, May 20, 1941.

The meeting was called to order at 3:55 P.M. by the President, Dr. J. S. Templeton, Pinckneyville.

The President: The first order of business is the report of the Credentials Committee.

Dr. C. E. Wilkinson, Danville: The Credentials Committee has certified 64 delegates from downstate, 57 from the Chicago Medical Society and 14 members of the Council, a total of 135. Mr. President, I move that this constitute the body of the House of Delegates. (Motion seconded by Dr. W. C. Blaine, Tuseola, and carried).

The President: The next order of business is the roll call by the Secretary.

Dr. C. H. Phifer, Chicago: I move that the attendance slips which have been signed constitute the official roll call for this session. (Motion seconded by Dr. R. H. Hayes, Chicago, and carried).

The President: The next order of business is the approval of the minutes of the last meeting.

Dr. W. E. Kittler, Rochelle: If there are no objections or corrections I move that the proceedings as published in the Illinois Medical Journal for July 1940 be made the official minutes of this meeting. (Motion seconded by Dr. V. A. McClanahan, Aledo, and carried).

The President: The next order of business is the appointment of Reference Committees. Dr. Camp suggests that the Chairman of each Committee name a time when his Committee shall meet.

Committee on Credentials: Drs. C. E. Wilkinson, Chairman, H. P. Saunders, W. W. Fullerton, and Harold M. Camp.

Committee on Attendance: Drs. John W. Long, Chairman, Richard Greening, and S. M. Goldberger.

Committee on Reports of Officers: Drs. G. Henry Mundt, Chairman, C. W. Carter, and H. A. Beam.

Committee on Reports of Councilors: Drs. C. B. Ripley, Chairman, A. J. Wiegen, and R. L.

Reynolds.

Committee on Reports of Standing Committees: Drs. H. K. Seatliff, Chairman, C. O. Burgess and H. D. Palmer.

Committee on Revision of Constitution and By-Laws: Drs. Walter Stevenson, Chairman, P. R. Blodgett, and Oscar Hawkinson.

Committee on Report of Committee on Medical Benevolence: Drs. Frank L. Brown, Chairman, E. W. Burroughs, and H. F. Bennett.

Committees on Reports of Council Committees: "A" — Drs. George W. Post, Chairman, Harlan English, and J. J. Link.

"B"—Drs. C. O. Lane, Chairman, G. L. Kaufmann, F. H. Muller.

"C"—Drs. Frank F. Maple, Chairman, Gilbert H. Edwards, and J. H. Hermetet.

"D"—Drs. Tom Kirkwood, Chairman, I. S. Trostler, and W. W. Furey.

Committee on Report of Scientific Work, Social Security Problems, and Report of the Editor: Drs. L. O. Freeh, Chairman, Paul Headland, and William E. O'Neil.

Committee on Resolutions: Drs. D. B. Pond, Chairman, Mather Pfeifferberger, and E. C. Kelly.

Committee on Miscellaneous Business: Drs. P. J. McDermott, Chairman, A. M. Purves, and O. S. Pavlik.

The President: The next order of business is the presentation of the annual reports. These are published in the handbook, but each one is privileged to make a supplementary report. Each report was called for in turn.

REPORT OF THE PRESIDENT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The year 1940-41 has not been unusual but our nation's effort for preparedness has added some extra work. Your officers have had a feeling of anxiety. We have been ready at all times and have been called upon frequently to render service ourselves, as well as to organize the profession to be ready to do whatever they may be called upon to do. We have every reason to believe that organized medicine in our state will give a good account of itself and not fail our beloved America in anything that may occur during these trying times.

Organization work has advanced during the year and at the present time is in favorable condition to continue. We have made progress towards a better understanding and hope for closer bonds with other professions. We need the support of all organizations of the healing arts. In union there is strength.

We doubt if there ever was a year of so much educational work. Our county societies, the foundation of our organization, have been alive and have held more educational meetings than ever before. Our Scientific Service and Educational Committees have been very active and to this time ten district meetings have been held. Over a thousand physicians have attended these refresher courses and many of our best university men have been the teachers. Clinics have been held in connection with our district meetings, and by our County Societies. Outstanding among these have been heart studies, applicable to our times because of the great increase of our annual death rate from heart disease.

I have attended every meeting of the Council, a body of hard working self-sacrificing gentlemen. Never in my life have I associated with an organization composed of men more interested, with definite opinions, yet ready at all times to kindly consider the opinions of others.

The result of the A. M. A. suit at Washington, though a distinct disappointment to all of us, should be a stimulus. It is only a little set back and should show us the importance of medical organization. Evidently we cannot trust all in official life to understand the aims and objects of organized medicine. We must, by our every day life convince the world that we are professional men and not tradesmen.

One of the accomplishments of the past year is the beginning of service of the Benevolence Committee. Read carefully their report and note that the indigent aged physician will not in the future be compelled to ask for the necessities of life.

Though rejoicing in the accomplishments of the year, our hearts are pained by the loss of some of our most faithful co-workers. Men who were active when many of us entered the service. We learned to lean on them, to look to them for advice, and to love them. Though their days of service are ended the memory of their lives will continue to encourage us who knew them best.

Respectfully submitted,

J. S. Templeton, M. D.,

President, Illinois State Medical Society.

REPORT OF THE PRESIDENT-ELECT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The past year has been a very instructive one. The duties of this office are largely those of becoming familiar with the working procedures of the Society. During this time I have had the pleasure of visiting a few county medical societies and participating in their programs. I have also attended every meeting of the Council and have taken part in its deliberations.

In the past fifteen years there has been a constant and stupendous increase in the volume of executive business that confronts our large medical societies. The great majority of this material demands many hours of time, careful consideration and evaluation by excellent secretaries and very thoughtful admin-

istrative bodies. The highly efficient manner in which these procedures are so carefully disposed of by your secretary and members of your Council is to be commended.

The medical care of the indigent remains a serious problem in both metropolitan and rural communities. Industry has in recent months absorbed some of the employables. It should be remembered that the requisite trends in industry and business probably do not directly or immediately affect the employable persons receiving relief. It is apparent that it will require different types of employment for the unskilled, semi-skilled and skilled worker. Thus there will be a considerable lag in the upward trend of employment before the general rolls are affected.

A new question that greatly concerns most of our state medical societies today is how to provide a program for the medical care of Social Security clients. This question is especially complicated because of the wording of the Social Security Act which definitely limits the payments of funds to recipients only. The latter is a very serious complication when it comes to trying to provide funds for a program for good medical care for these clients and may require readjustment of our enabling acts or changing the Social Security Act before the objectives of the Social Security Act may be attained.

The State of Illinois has not yet passed enabling acts covering the following categories of the Social Security Act: (1) Aid to dependent children and (2) the blind. It has, however, passed an enabling act on old age assistance. A committee has been appointed by your Council to confer with the State Department of Public Welfare regarding a medical program for the old age recipients. It was my privilege to be Chairman of that Committee. A report of our activities is included in the Annual Reports.

It is my impression that if and when the State of Illinois passes enabling acts covering the other categories of the Social Security Act, programs for the medical care of clients in those categories should be drafted through the cooperation of the State Department of Public Welfare and an advisory committee of the Illinois State Medical Society, thereby trying to provide good medical care for the clients in each of these groups. In these programs the client should have free choice of physician and provisions should be made so that the physician may be paid direct for medical services rendered these clients.

Respectfully submitted,

Charles H. Phifer, M. D.

President-Elect.

Dr. Phifer: In connection with my report as President-Elect, there is one other matter that I would like to bring to the attention of the House of Delegates. It is now eleven years since the beginning of the depression. There remains at the present time an estimated total of 967,000 people in this state who are on the five public as-

sistance programs, namely, general relief, W.P.A., old age assistance, mothers' pensions and the blind. The legislative status of these people has changed from time to time. There has been through most of this time a working program whereby these people have free choice of a physician. At the present time there is a rumor that much of this is to go back to the township committee. It seems to me that we have other problems entering into this, and this morning I was confronted by Dr. Grulee to know what the Illinois State Medical Society would do with the indigent. I am strongly opposed to the socialization of medicine. I would like to see in every county a committee that can take care of these problems. We have in some counties a well organized advisory committee. It seems to me at this time after ten or eleven years during which time a good deal has been expended for certain types of work, that we should see that a good advisory committee should be appointed, and if any other state should set up programs we should advise them that we have a good advisory committee. I think we would have much better control. I should like to add that as a supplement to my report.

REPORT OF THE SECRETARY

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

In submitting this annual report your secretary desires to state first of all that the fiscal year which ended on April 30, 1941, has been a most trying one with many unusual duties delegated to this office. Many unusual duties have likewise been referred by this office to the component county medical societies in connection with medical preparedness work and the several surveys which have been under way since last summer.

Our annual report a year ago stated that one of the outstanding problems of the previous year was the Wagner Bill of 1939 which many people and some legislators desired to have enacted and placed in operation. This Bill as you know, was referred to a committee where it has remained to this time. It is true that Senator Wagner introduced his Hospital Bill during the past year, but with the many more important matters coming before Congress constantly, there has been but little consideration given to this proposed legislation.

The role of medicine in our national defense has been more prominently considered during the past eight months. It is generally known that medicine and its many services in time of war or when a preparedness movement is under way, is one of the

most important preparedness considerations. Soon after the annual meeting of this Society last year, the American Medical Association was requested by governmental agencies to select a Committee on Medical Preparedness and be prepared to meet any possible emergency which might arise in the future. This Committee was selected by the House of Delegates of the American Medical Association last June during its annual meeting in New York. Soon after the Committee was organized, the members selected a state chairman for each of the several states, then asked for the organization of a state society Committee on Medical Preparedness.

In our Society the Committee is composed of the president, secretary, chairman of the Council, and the secretary of the Chicago Medical Society. Our state Committee asked each component county medical society to select a county medical society Committee on Medical Preparedness to aid the government in every way possible in the many considerations of our national defense. At the request of the government, the A. M. A. Committee sent questionnaires to every physician in the United States to get reliable information concerning each physician regardless of age, race, sex, physical condition or membership in one of the Medical Reserve Corps. The questionnaires were to be returned promptly to the A. M. A. where they were to be tabulated and the information placed on punch cards using symbols so that this information could be made readily available for the government.

During the early part of September less than 50 per cent of the Illinois physicians receiving the questionnaires had returned them to the A. M. A. We were requested to send letters to all Illinois physicians giving additional information concerning the importance of this survey and asking them to return the questionnaires promptly. Nearly 20,000 communications were sent out from the secretary's office to Illinois physicians urging them to respond to the requests for this information. As a result of this effort some 64 per cent of the physicians, had returned their questionnaires late in the fall. Since that time the A. M. A. through the Bureau of Medical Economics asked the state society secretaries to assume full responsibility for a better return of the questionnaires, and several thousand additional letters and questionnaires were sent out to those physicians who had not previously responded. On April 1, 1941, approximately 84 per cent of the physicians in this state had completed their forms and had returned them to either the A. M. A. or to the secretary's office. We were informed that in order to make this survey of any value to the government, it was necessary that 100 per cent cooperation on the part of our physicians was necessary. Within a short time the A. M. A. Bureau of Medical Economics will make out a list of all physicians who have failed to submit their questionnaires and endeavor to get the necessary information concerning these men from the biographic files of the Association.

Soon after the National Conscription Act was

passed we were asked to recommend physicians for appointment as examiners for the 360 local draft boards in Illinois. We were also asked to recommend the personnel for the 32 Medical Advisory Boards in this state, each of which was to have a minimum of 11 specialists in the various branches of medicine, and one or more dentists. These duties were delegated to our state Committee on Medical Preparedness, and in each instance we asked the county society committees to make the desired recommendations. In those counties where local committees failed to submit recommendations for personnel, it was necessary for our committee to use the directories to select men deemed best fitted for the several positions.

At this time there are approximately 1,200 Illinois physicians working with draft boards and on Medical Advisory Boards. Like the lay members of these Boards, physicians receive no remuneration, their work being considered a "patriotic duty." In many communities physicians acting as examiners for local draft boards have been making the examinations in their own offices, using their own equipment. Recently the Selective Service Administration in a special bulletin, has given permission when deemed advisable, to have a special place designated for conducting the necessary examinations; they also permit the selection of additional examiners who, when recommended, are properly appointed as associate or additional examiners so that the work may be done by more physicians in a group rather than have one physician examine the entire monthly quota.

We are informed that there are now at least 18,000 physicians in the United States acting as examiners for local boards, Medical Advisory and Appeal Boards.

Many Illinois physicians who were members of one of the Medical Reserve Corps, have been called to service, while many others have enlisted during the past six months. The Council of our Society has unanimously approved the suggestion that the dues of these members now in service, be remitted for one year as has been done in many states during the past few months. We have endeavored to maintain a list of these physicians who are members of the Illinois State Medical Society and are now in service, listing their home address, their rank and present address. We have urged them to report changes of address so that they may receive the Illinois Medical Journal regularly. We propose to publish their names and addresses in the Journal each month so that their friends will know where they are located. Each county society has been requested to send this information in to us so that a complete record may be maintained.

The government realizes the importance of adequate medical care for the civilian population and also for the men working in essential industries, and has asked that a survey be made in each county to obtain information concerning physicians, and to obtain a list of those whom the local Committee on Medical Preparedness believes essential for these types of es-

sential care. We have submitted the proper forms for tabulating this information, and have urged the committees to submit them to this office without unnecessary delay so that this information may be made available to the government as soon as possible.

THE SOCIETY

We are pleased to report a further increase in membership during the past year. There has been an increasing interest in meetings, and we believe more medical meetings have been held than ever before. The interest throughout the state in the Post Graduate Conferences has been unusual, and there has been a splendid type of cooperation in every Councilor District where these conferences have been held. Hundreds of members attending them, have urged the Society to continue this type of service which they believe is of much value to the busy practitioner.

It has been interesting to note that in several instances where conferences have been held in areas of the state which are sparsely settled, as many as thirty-five counties have been represented in the registration. The men have given as many as 65 different towns or cities as their place of residence, showing that the physicians in the smaller communities do attend meetings when the opportunity presents itself. The report of the Post-Graduate Committee will be of interest to all members of this House of Delegates.

The Committee on Archives has been active during the past year and it is the opinion of your secretary that this should be made a permanent committee. Each county society should select a committee to aid the state society committee in procuring photographs and biographical data of men who have been prominent in the profession in former years.

THE COUNCIL

During the last fiscal year the Council has held the usual number of regular meetings and has had two or three special meetings called by the chairman for the consideration of important problems which demanded immediate attention. Each member of the Council has been very active in society affairs, and has not hesitated to act promptly on all problems which have arisen during the year.

The report of the chairman and of the individual members should be studied carefully by the Reference Committees and by each member of this House of Delegates.

It has been necessary to appoint a number of new committees during the past year, and reports of each will be found in this handbook. Among these are the Special Committee on Indigent Medical Care, the Advisory Committee to the Division of Old Age Assistance of the State Department of Public Welfare, a Committee to study and make recommendations to the Society relative to the present activities of the N. Y. A. in regard to their medical and health problems, and a liaison Committee to confer with the Governor which was selected at the request of Governor Dwight H. Green.

The Council has conferred frequently with the Legislative Committee and has received regular reports from many other committees at each Council meeting.

One member of the Council died during the past year, leaving a vacancy in his district which was later filled temporarily by the Council at the request of the county societies of that District. Dr. Henry G. Horstman, Murphysboro, had served faithfully as Councilor for the Tenth District since 1939, and died suddenly one evening last fall after a busy day in his office. Dr. G. C. Otrich of Belleville was appointed by the Council to serve until this annual meeting in accordance with the By-Laws. Dr. Otrich has been unusually active in his District, and has attended all Council meetings since his appointment.

THE ANNUAL MEETING

The 1941 annual meeting is the first meeting of this Society to be held in Chicago in thirteen years. The Chicago Medical Society, its many committees, the chairman of the Committee on Arrangements, and many others, have endeavored in every way possible to make this meeting an outstanding one. Nothing has been left undone which, in their opinion, would add to the success of this meeting.

All meetings will be held in the Palmer House, where also the many exhibits, technical and scientific, are to be housed. The technical exhibits have been selected carefully and should be of much interest to all members of the Society. The scientific exhibits represent the progress in the various branches of medicine during recent years, and we believe they are the best exhibits of this type which have yet been displayed at any annual meeting.

At the request of the Section Officers responsible for the preparation of the scientific programs, the Council authorized the inviting of more than the usual number of guest speakers for this meeting. Each speaker has selected a subject which will be of general interest to all physicians attending the meeting.

THE MEDICAL BENEVOLENCE FUND

At the 1940 annual meeting the House of Delegates approved the resolution asking for the formation of a Committee on Medical Benevolence to render financial aid to aged or disabled members, their widows, or widowers. This request was approved and the Committee appointed and authorized to place the program in operation as soon as possible.

All of you have read the adopted procedure in the Illinois Medical Journal where it has been published on several occasions. The sum of \$5,000.00 was set aside by the Council to start this work, and this fund can be used only in rendering financial aid to those for whom it was designated. The report of this Committee published elsewhere in this handbook will give the information regarding the work of the Committee, their careful investigations, and other pertinent data. The names of recipients are not made public and are carried on special records in the secretary's office.

The Woman's Auxiliary has made the Benevolence Fund one of its major projects, and has submitted additional funds from its county branches, which have been properly credited to this fund.

The auditor will review the records and make a report on the Benevolence Fund annually, without mentioning the names of any of the beneficiaries.

DEATH OF PROMINENT MEMBERS

During the past year the Society has been most unfortunate in losing many prominent members by death. Among these are three past-presidents, one of them the Editor of the Illinois Medical Journal for 22 years, the treasurer who served in that capacity for nearly 28 years, and one member of the Council.

Dr. Henry G. Horstman, as previously stated, died last fall after serving as Councilor for the Tenth District since 1939.

Dr. Charles B. Reed, a past-president, a member of the A. M. A. House of Delegates for many years, a noted author, and a professor for many years in the Obstetrical Department of Northwestern University Medical School, died last fall while on a fishing trip in northern Ontario. Dr. Reed had been a member of many important committees of this Society, and was chairman of several of them at the time of his death.

Dr. Charles E. Humiston, past-president, and an important figure in this Society, died during the past winter after an illness of more than one year.

Dr. Charles J. Whalen, editor of the Illinois Medical Journal for 22 years, died on April 7, 1941. Dr. Whalen was president of the Illinois State Medical Society for the fiscal year 1913-1914. He became editor in June, 1919, and was most faithful in that capacity until his death. Additional information concerning this nationally known physician and writer will be found elsewhere in this handbook.

Dr. Henry G. Ohls, managing editor of the Illinois Medical Journal, died March 17, 1941, after a short illness. Dr. Ohls had been active in the work of the Journal for 28 years. Most of that time he filled the office of managing editor. An unusual man in many respects, he suffered a cerebral embolism causing partial paralysis of the right hand when he was well past 70 years of age; soon after his recovery, he learned to write with his left hand, and continued his work until a few days before his death.

Dr. A. J. Markley of Belvidere, was elected treasurer of this Society in 1913 and served in that capacity until his death last winter. Dr. Markley was always present at the annual meeting, and most members of the Society knew him well. For a number of years he was on the staff of the Illinois Department of Public Health, and travelled extensively over the state while in this service.

Dr. Austin A. Hayden, for many years active in this House of Delegates, and for a number of years secretary of the Board of Trustees of the American Medical Association, died during the past summer.

Several secretaries of county societies, and some

former secretaries, likewise have passed away since the last meeting of this House of Delegates. The many memories of these fine men should be an inspiration to those of us who remain, for many years to come.

THE SECRETARY'S OFFICE

During the past year the Council has approved several changes in the accounting system formerly in use. At this time all bills of the Society are paid through the secretary's office. Bills of the Illinois Medical Journal, the Educational and Scientific Service Committees, the Legislative Committee, and all other similar committees, are paid upon receipt of a requisition form. With this system all financial records and data are assembled in one office, and all transactions of the Society involving the expenditure of money are recorded in one large ledger. These changes were made at the request of the auditor who has always been interested in the affairs of this Society, and has endeavored to aid in improving our records when possible.

The work in the secretary's office has been increasing materially during the past year, and it has been necessary to employ additional assistants for short periods when it was impossible for the two regular assistants to take care of the routine work, the preparations for the annual meeting, the post-graduate conferences, the selective service and preparedness committee duties, and other similar work demanding their immediate attention.

THE COMPONENT COUNTY SOCIETIES

We desire again to thank the many county society secretaries, other officers and committee members for the splendid cooperation we have received during the past year. Our appeal for services of many types has resulted in many prompt replies.

Several county society secretaries have been called for active military duty in recent months, making it necessary for the society to select a temporary secretary unfamiliar with the duties of his office. We have endeavored in all instances of this type, to aid the new secretary in every way possible, sending him the usual supplies for making his work easier, and working with him whenever he so requests. These changes have caused but little confusion either in this office or in the county secretary's office.

MISCELLANEOUS

The annual report of the treasurer is not published in this handbook as it has been in the past. The report of the treasurer in recent years has been largely a repetition of the financial report of the secretary, as the treasurer has not actually handled any of the Society funds. The funds are carried in the name of the Illinois State Medical Society, and payments are made by vouchers issued from the secretary's office for bills audited by the Finance Committee and approved by the Council.

MEMBERSHIP DATA

Members reported in good standing
April 30, 19407,998

Added during the year:		
New Members	480	
Reinstatements	57	537
		8,535
Dropped during the year:		
By death	116	
By removal or resignation	54	
By expulsion	1	
For non-payment of dues	147	318
		8,217

NET GAIN219

FINANCIAL REPORT OF THE SECRETARY

Receipts From County Societies

Adams	\$ 864.00	Livingston	248.00
Alexander	104.00	Logan	248.00
Bond	48.00	McDonough	280.00
Boone	80.00	McHenry	224.00
Bureau	208.00	McLean	624.00
Carroll	48.00	Macon	664.00
Cass	168.00	Macoupin	232.00
Champaign	816.00	Madison	727.00
Chicago Medical Society	35,182.00	Marion	272.00
Christian	172.00	Massac	152.00
Clark	8.00	Mason	128.00
Clay	112.00	Menard	64.00
Clinton	104.00	Mercer	80.00
Coles-Cumberland	392.00	Monroe	64.00
Crawford	152.00	Montgomery	184.00
DeKalb	104.00	Morgan	276.00
DeWitt	136.00	Moultrie	120.00
Douglas	16.00	Ogle	136.00
DuPage	664.00	Peoria	1,544.00
Edgar	176.00	Perry	80.00
Edwards	24.00	Piatt	128.00
Effingham	168.00	Pike	112.00
Fayette	64.00	Pulaski	40.00
Ford	48.00	Randolph	160.00
Franklin	408.00	Richland	
Fulton	328.00	Rock Island	608.00
Gallatin	72.00	St. Clair	944.00
Greene	120.00	Sangamon	1,132.00
Hancock	176.00	Saline	40.00
Hardin	24.00	Schuyler	56.00
Henry	304.00	Shelby	152.00
Henderson	24.00	Stephenson	528.00
Iroquois	192.00	Tazewell	40.00
Jackson	224.00	Union	24.00
Jasper	48.00	Vermilion	432.00
Jefferson-Hamilton	208.00	Wabash	72.00
Jersey	80.00	Warren	184.00
Jo Daviess	160.00	Wayne	64.00
Johnson	72.00	Washington	96.00
Kane	1,376.00	White	8.00
Kankakee	480.00	Whiteside	
Knox	320.00	Williamson	200.00
Lake	784.00	Will-Grundy	808.00
LaSalle	768.00	Winnebago	1,064.00
Lawrence		Woodford	112.00
Lee	232.00	Total	\$59,609.00

RECEIPTS AND PAYMENTS

May 1, 1940 to April 30, 1941

RECEIPTS

County Societies	\$59,609.00
Subscriptions — Journal	160.10
Advertising — Journal	19,311.94
Exhibits — State Meeting	7,217.50
Interest — Bonds, etc	2,101.40
Bonds Called	5,000.00

Bond Premium	100.00
Refunds	131.84
Total Receipts	\$93,631.78
Cash Balance May 1, 1940	66,314.47
Total	\$159,946.25

PAYMENTS

Secretary's Office	\$15,444.83
Council Expense	5,862.51
Educational and Scientific Service Committee	13,511.39
A. M. A. Meeting Expense	991.60
State Meeting Expense	8,688.04
Maternal Welfare Committee Expense	583.35
Post Graduate Committee Expense ...	1,122.59
Honorariums	1,050.00
Legal and General Counsel Expense ..	1,220.30
Legislative Committee Expense	4,939.63
Journal	26,612.10
Unemployment Insurance — Deposit ..	729.00
Transferred to Benevolence Fund	5,000.00
Total Payments	\$85,755.34
Cash Balance April 30, 1941	74,190.91
Total	\$159,946.25

Respectfully submitted,
HAROLD M. CAMP, M. D.,
Secretary.

FRED N. SETTERDAHL

Licensed Public Accountant

224 Robinson Bldg.

Rock Island, Illinois.

To the Members of the House of Delegates:
Illinois State Medical Society.

CERTIFICATE OF AUDIT

I have audited the accounts of your Society for the year ended April 30, 1941, as follows:

Secretary's Accounts — Dr. H. M. Camp.

Journal Accounts — Dr. C. J. Whalen.

Educational and Scientific Service Committee — Miss Jean McArthur, Secretary.

SECRETARY'S ACCOUNTS:

Receipts: I have verified the dues received from the County Societies with duplicate receipts; the master ledger cards of each County; and compared same with Secretary's Report, as published. Other receipts consists of Exhibit rentals, Journal advertising, subscriptions, Interest, etc. During the past year the accounting method has been changed so now all receipts are received by the Secretary's Office and all payments made by the Secretary's Office except a Petty Cash Fund handled by Miss McArthur's Office. On account of the change made I have combined all receipts and payments in my report instead of showing the Editor's accounts and the Educational and Scientific Service Committee separate.

Payments: Payments are made by check and supported by approved vouchers, orders, invoices, etc.

Treasurer's accounts are the same as the Bank accounts and as all funds are handled through the Secretary's Office, no special report has been made.

The Funds are deposited in the name of the Society and Bonds amounting to \$50,000.00 are held under a Custodianship Contract by the State Bank and Trust Company of Evanston, Illinois.

This past year a Benevolence Fund has been created with a transfer of \$5,000.00 from the General Fund. This Fund is kept separate and the only payments from the fund are to beneficiaries.

The records have been well kept in the various departments and in my opinion represent the true transactions for the

year. I have furnished the Council with a detailed Audit Report.

Respectfully submitted,

FRED N. SETTERDAHL,

Licensed Public Accountant.

DR. CAMP: My report will stand as printed. I only want to announce that the membership data is as we found it on the 30th of April. Since that time we have added some 75 or 80 members, and the total membership is approximately 8,300, an increase of about 300 over last year.

REPORT OF THE CHAIRMAN OF THE COUNCIL

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Council has just completed one of its busiest years. Since the last annual meeting of the Society, it has been in session seven times, with an ever increasing volume of work. Each meeting was unanimously attended except for occasional illness or other unavoidable cause. The Chairman wishes to hereby acknowledge the serious cooperative assistance of each member, and time and effort devoted to Council committee activities. Certainly no chairman has had a more loyal and productive body. As in previous years the wisdom and industry of your secretary have been the guiding light and dynamo of the Council's business.

The Grim Reaper has taken heavy toll of the Society during the past twelve months, having removed our beloved treasurer, Dr. A. J. Markley; our editor and a past president, Dr. Charles J. Whalen; The Journal's managing editor, Dr. H. G. Ohls; the councilor from the tenth district, Dr. Henry G. Horstman; and two other past presidents, Dr. Charles B. Reed, and Dr. C. E. Humiston; and a past president of the A. M. A., Dr. William Allen Pusey. These men have all been faithful to the cause of organized medicine, and have left gaps in the ranks of the Illinois State Medical Society that we shall find difficulty in mending.

Soon after the 1940 annual meeting, it became obvious that the medical profession must play an important part in the program for improving National Defense, medical preparedness being one of its most vital factors. Early last summer a committee from the state society composed of the President, Secretary, Chairman of the Council, and Secretary of the Chicago Medical Society organized and set up the medical machine which has been invaluable to the smoothly functioning Selective Service regime in Illinois. Committees on medical preparedness were formed in each "down-state" county, and in each of the fifteen branches of the Chicago Medical Society. In such manner was the government plan for preparedness furnished with examining physicians for the local boards, thirty-two medical advisory boards, and physician members of appeal boards throughout the state.

The committee also assisted the American Medical Association in completing its medical survey of Illinois. Letters had to be sent to some of our members seven or eight times before questionnaires containing the desired information were obtained. A more recent survey has been under way to determine the needs of the individual communities, and to attempt to classify physicians for civilian care, care of industrial workers in essential plants, teachers, health department personnel, etc., this information to be referred to government agencies. It is an urgent necessity that prompt returns be submitted, these to go to the secretary of the state society, who in turn will refer the data to the American Medical Association Committee.

Within two years of its proposed inception, the Benevolence Committee has become a functioning fact. The Council voted the allocation of one dollar of the yearly dues to the Benevolence Fund beginning in 1941. This committee has attacked and successfully solved a gigantic task in an unbelievably short time, and must certainly have gained the grateful appreciation of us all. The Woman's Auxiliary through local committees is endeavoring to get funds from various sources to assist in this work. It is destined to become one of our major activities, and it is obvious that additional sources of revenue must be found.

An Advisory Committee to the State Division of Old Age Assistance, Department of Public Welfare, was appointed to confer with officials in an attempt to get a more satisfactory plan for rendering medical care to their old age assistance clients, with a view to securing better medical service, and at the same time more remuneration to the physicians. So also is there a Committee on Indigent Medical Care, to work with boards of supervisors, in the endeavor to create more satisfactory plans for providing this care throughout the state. Both these committees have been active and have made satisfactory progress. Their reports appear in the handbook.

Another committee to receive special mention is one appointed to confer with similar committees from the Dental Society and Pharmaceutical Association for the purpose of forming an Interprofessional Council. Thus may members of these allied professions be brought in closer contact for the solution of mutual problems.

At the House of Delegates meeting a year ago, a committee was named to recommend needed changes in the Constitution and By-Laws. Your Council chairman served on this committee, and it is believed we are ready to submit for your consideration a Constitution and By-Laws materially improved. It is the hope of the Council that this House of Delegates will consider carefully and act wisely on each paragraph.

The Publication Committee has been in session several times since the death of Dr. Whalen and Dr. Ohls; and with the assistance of the secretary and a representative of the press which publishes the Journal, the Council has assumed responsibility for deliv-

ery of the April, May, and June numbers, scheduled to come out the tenth of the month, as usual. The Council at its organization meeting in June will make definite arrangements for the Journal's future.

Last summer the Educational and Post Graduate Committees asked for ten post graduate conferences, one in each councilor district except Cook County. Unanimous approval by the Council was instant. Special mention is hereby made of the excellent work of these committees, whose contribution to medical education has reached beyond the borders of Illinois.

Through the efforts of the Council the Governor of the State was contacted and found to be in sympathetic accord with all efforts of the medical profession to better serve the people of Illinois. He promptly asked that our liaison committee become his personal medical advisory committee. Such official recognition is unusual, and the new obligation it entails is very keenly and seriously felt by the Council, whose desire it is to cooperate in every way possible to improve the health, happiness, and living conditions of the people of this state.

The Council, in exercising its prerogative as described in Section 3, Chapter IX of the By-Laws, has nominated for membership of the Legislative Committee, Drs. Robert Hayes, Mather Pfeifferberger, and Harry Otten, and recommends to the House of Delegates their election.

Much time and effort has been given by the Council to make this, the first meeting in Chicago in thirteen years, an outstanding one. It is unanimously felt that the selection of the Palmer House was fortunate, as its personnel has cooperated thoroughly to make you carry away the most pleasant memories of an unusually successful annual meeting. The Association of Commerce and other civic groups have endeavored to help our host, The Chicago Medical Society, plan this memorable occasion. The chairman of the Council takes this opportunity to publicly acknowledge the untiring efforts of Dr. H. Prather Saunders, chairman of the Committee on Arrangements, who attacked this huge job with utmost confidence that this would be the greatest meeting in the history of the Illinois State Medical Society.

Omission of the Hall of Health from this meeting was considered advisable by the Council because of its poor success last year. However, it is still felt that such an institution is a highly worthy project, and there is a hope that it will be attacked with renewed vigor in 1942.

There are more scientific exhibits on display than ever before, as is also true of the technical exhibits. It will be well worth the while of all physicians to visit them.

There have been many unusual problems confronting the Council this past year, in addition to the ever increasing regular routine business, such as those relative to medical preparedness and the national defense, and those concerning the present and future of our official publication. The Council has fearlessly

solved them as they have arisen. The evident desire of the councilors to well represent their respective component societies at all times has helped make this highly efficient body a smoothly working unit of this great society. You have been ably represented by a president whose sincere desire to further the interests of this society, and whose uncompromising attitude regarding his duties and his opportunities to serve you, have been noted by this Council. The incoming president is without doubt one of the outstanding figures in organized medicine in this state, whose clear thinking, untiring work, and dynamic personality have served the Chicago Medical Society for many years, as well if not better than any one single man of the present or past. His influence in the Council this past year has given rise to a feeling of security in the wisdom of the helmsman who is to guide our destinies in 1942.

The chairman in retiring wishes to express to each member of the Council his sincere thanks and kind personal regards.

Respectfully submitted,
L. E. DAY, M. D.
Chairman of The Council.

Dr. Day: As a supplement to the report of the Chairman of the Council, I would like to offer the following:

Dr. Hutton has reported to the Council the activities of the National Youth Association as they relate to the medical profession. He and Dr. Weld were appointed as the Liaison Committee between the Council and the National Youth Association. Consequently the Council has been somewhat in touch with N.Y.A. activities which will be more fully discussed by Dr. Hutton.

The Council heartily endorses Dr. Phifer's plan of a central committee with sub-committees in each county to help handle all problems concerning medical care. Dr. Phifer has presented the plan in full in a supplement to his report as President-Elect.

Although the expenses of the Society have been increased due to expenditures from the Benevolence Fund and although our receipts will be materially reduced by the cancellation of the dues of all men in active military and naval service, the Council has not seen fit to recommend an increase in the dues at this time, but suggests to the House that they remain at eight dollars per capita as usual.

The Council wishes to again call to the attention of the House its nominations of Dr. Robert H. Hayes, Mather Pfeifferberger, and Harry

Otten as candidates for the Medical Legislative Committee.

The Council further recommends to the House that the Committee on Public Health Administration which has never been active, be abolished.

REPORT OF THE COUNCILOR OF THE FIRST DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

In order to get some material for this report I have written to the ten counties in the First Councilor District and sent a questionnaire asking them the number of meetings they have held during the year. This varies in the different counties, the larger the county the more physicians and the more regular the meetings. The attendance at these meetings is about fifty per cent of the membership. Evening meetings with dinner are more popular, as a rule. Papers are read at the county society meetings by outside men although in a few counties the members do participate in the program. Very few counties are making any effort to keep a history of their county medical society.

No complaints have been received concerning the conduct of the state medical society. The chief complaint of the county societies is on attendance, that it is hard to get doctors to attend the meetings and as a rule about ninety per cent of the physicians are members of the county medical society.

The foundation of our state society is the county medical society and every effort should be made to improve and develop the various county societies. This must be done largely through the effort of the individual county society members but more help can be given by officers of the state medical society if they are called upon. Attendance at meetings depends largely on advertising, not only by cards but by personal telephone calls. Possibly we should make a greater effort to get all physicians to join their county societies, and often we can secure more interest in the society if we have the various members take part in the program in conjunction with out-of-county speakers. The history of your county medical societies should be kept up to date. In a number of the societies they have established a clipping file in which newspaper articles are clipped when they concern the local medical profession. I believe an effort should be made to get a medical history established on a firm foundation in each county.

Physicians all through the district have shown good cooperation with the preparedness program in examining draftees. This is of course done without remuneration and with some expense to the doctor besides his time. The reaction in the minds of many men, who do this work for nothing, is not pleasant when they observe other workers being paid, not only top wages, but double wages for over-time. Doctors have a definite place in the preparedness program and I believe are doing their duty in the best possible American way.

I trust that there may be full cooperation between the officers of the Society and the individual county organizations so that we may all be proud of our medical standards of life.

Respectfully submitted,
EDWARD H. WELD, M. D.
Councilor First District.

REPORT OF THE COUNCILOR OF THE SECOND DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

During the year 1940-41 the county societies of the Second District have carried on as usual in so far as holding well attended meetings and maintaining membership is concerned and I believe have also cooperated well in all the new activities which have developed because of the preparedness and other national programs.

The first of this year's Post Graduate Conferences was held at LaSalle on October 6th, 1940. The program was favorably received and I think that the local committee is to be complimented upon the fine manner in which the meeting was managed.

The North Central Illinois Medical Association met at Princeton in the Second District this year and while this Society is not a part of our State Society, nevertheless part of the evening program was devoted to a discussion of the Woman's Auxiliary. Considerable interest was shown in the work of the Committee on Medical Benevolence and it was thought that the Auxiliary could be of considerable service to this committee.

No serious local problems have come to my attention during the past year.

Respectfully submitted,
EDGAR C. COOK, M. D.,
Councilor Second District.

REPORT OF THE COUNCILORS OF THE THIRD DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The activities of the medical profession in the Third District during the past year have been many and varied. So far as is known no physician in Cook County has been on relief during the past year although an occasional rumor to the contrary has been heard.

That the medical men have been busy professionally is evidenced by the rate or percentage of hospital occupancy during 1940. According to the American Medical Association figures, the percentage of hospital occupancy for the entire State of Illinois was over 70 per cent and in Cook County the rate for 1940 was probably more than 80% in general hospitals. This does not include the government facilities. The state

and county institutions seemed to run between 90 and 100 per cent capacity throughout the year.

Membership in the Chicago Medical Society as of April 1, 1941 was 4,715 physicians which include 96 Emeritus and 13 Life Members plus one member who was exempted from paying dues. Although the Chicago Medical Society has been unfortunate in having lost by death a considerable number of its prominent members during 1940, the total membership as of April 1st represents an increase of 75 members compared to the same date last year.

About 1,600 members of the Chicago Medical Society availed themselves of a cash indemnity plan for hospitalization during the last year compared to about 1,800 for the year previous. This plan continues to give satisfaction. Since some of the members have been inducted into military service the insurance company which provides this insurance has been refunding parts of the premiums when this insurance has been cancelled. This same type of hospital indemnity was offered to the families of these physicians but a sufficient number could not be enrolled to fulfill the requirements.

The medical care of the indigent so far as the clients of the Chicago Relief Administration are concerned has been rendered with the aid of a committee from the Chicago Medical Society acting in an advisory capacity to the Relief Administrator. A wholesome relationship exists between these parties and this committee has been a highly efficient and industrious committee which has met at least weekly throughout the year and has accomplished much. In Cook County during 1940 there were about 2,600 physicians on the panel to do this relief work to whom was paid approximately \$300,000.00. It is easy to realize that this sum bespeaks a very large amount of professional work rendered at much below the ordinary fees.

The Central Society has held regular scientific programs as well as regular monthly meetings of the Council. The branches have held regular meetings throughout the year with speakers of international reputation as the attraction. The local physicians have been neither neglected nor forgotten inasmuch as they have provided many interesting and instructive programs throughout this district as well as elsewhere. Most of these meetings have been quite well attended and when one considers the number of activities going on it speaks well for the continued interest of the men in the profession to have as many as 250 to 300 attend a local branch meeting.

The Chicago Medical Society has seen fit to remit the dues of its members for 1941 who have been inducted into the military services of the United States.

Respectfully submitted,
JOHN S. NAGLE, M. D.,
L. E. DAY, M. D.,
P. E. HOPKINS, M. D.,
Councilors Third District.

REPORT OF THE COUNCILOR OF THE FOURTH DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The component counties of the Fourth Councilor District have come through the past year in excellent shape. As these societies vary from the second largest in the state to the smallest, their activities have varied accordingly. Regular meetings have been held and attendance, as a rule, has been larger. Two of the societies have public welfare committees which take a very active part in community affairs, and these are so successful that it is the councilor's opinion that the smaller societies could follow this example to considerable advantage. There has been a decrease in the number of programs in reference to obstetrics and pediatrics, but there has been no let-up in the interest in these subjects. It has been further noted that when obstetrical speakers have been obtained, they draw a larger audience than those of any other line. The continued interest in these two subjects has been further reason for the fact that the obstetrical and infant mortality is at a record low.

The membership is showing a willingness to accept a responsibility in the recent military affairs prevalent throughout the state. Many men are serving gratuitously on the draft examination boards, are putting in long hours, and doing excellent work at considerable sacrifice to themselves. They are developing increased efficiency in the handling of this situation and are rendering the highest type of patriotic service. The incidence of rejections, which has received so much newspaper comment, appears to be not the poor physical condition of the young men in our communities, but is due largely to the very stringent regulations of the army, so that men who are able to do hard physical labor and who are in otherwise good health are rejected as being unsatisfactory for military duty because of minor disabilities, which in no way impair their earning power and which should in no way interfere with military service. Whenever the military physical requirements are placed on a par with those of industry, it is probable that our percentage of rejections will be exceedingly low.

In several localities campaigns have been instituted for the discovery of tuberculosis cases, a condition which has apparently been neglected for the past several years. The result has been that numerous open cases and contacts have been unearthed. When these are properly treated and isolated, there should be a still further reduction in the incidence of this disease.

Since the public is calling upon the medical profession for advice as never before in our history, your councilor wishes to urge strongly that each county society appointed a committee composed of some of its most public spirited members who will be willing and able to represent the society in its relations with the public and who will be able to furnish the public proper advice along lines that pertain to medical affairs. I feel that this is the most important step the local organizations can take at the present time.

The councilor of the Fourth District has attended all of the meetings of the Council and numerous committee meetings. He has attended various county meetings when invited to do so and has also addressed numerous lay groups on medical topics. These talks were well received and it is hoped that at least a little good was accomplished.

Respectfully submitted,
E. P. COLEMAN, M. D.,
Councilor Fourth District.

REPORT OF THE COUNCILOR OF THE FIFTH DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

During the past year there has been little change in the condition of the various societies in the Fifth Councilor District. Meetings have been held regularly with good programs. More members are taking an active interest in medical organizations, local, state and national. In several counties problems of purely local concern have arisen but these have all been adjusted satisfactorily.

In McLean County the question of contract practice among members of the Moose and Eagles lodges has created considerable discussion. Although this has existed for years and it has not had the approval of a majority of the membership yet nothing was done to abolish the practice. Recently this matter came before the society and on recommendation of the Public Relations Committee a resolution was passed and an amendment to the Constitution was voted, making the holder of such a contract ineligible for membership in the society. We believe this action will prove of benefit to the entire profession of the county and it has been accomplished without any dissension.

The Post-Graduate Conference held in Bloomington last October was one of the most important medical meetings held in the District during the past year. More than 180 physicians were registered. We believe meetings of this kind are of considerable value especially to those engaged in general practice. They should be continued during the coming year.

Last year the House of Delegates voted to establish a benevolence fund and the committee selected to administer this fund has been active. A number of requests for aid have been received and help has been given. There are physicians who have been unfortunate and need financial assistance in their old age and there are widows who have been left with insufficient funds. The establishment of this fund is a move in the right direction and should have the support of the entire membership.

Respectfully submitted,
RALPH P. PEAIRS, M. D.,
Councilor Fifth District.

REPORT OF THE COUNCILOR OF THE SIXTH DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Councilor of the Sixth District desires to report medical affairs in the District in a healthy condition, no dissension or dissatisfaction anywhere. Prosperity has reached a fairly high level — a goodly number of the younger men are signing up for the Defense Program, many have already been called, leaving some territory poorly covered.

Nearly all County Societies have been visited, meetings as a rule are well attended and programs have been excellent. The outstanding meeting, one of the many Post Graduate Courses now being held throughout the State, was held in Alton on December 4, 1940. The papers were of a high order and thoroughly enjoyed. Attendance was very good. We hope for larger attendance when the character of these Post Graduate Courses becomes better known. A little more advertising will be of assistance.

The Councilor and the doctors as a whole in the District learned with regret of the passing of our old friend Dr. Chas. J. Whalen, our editor for so many years.

Respectfully submitted,
THOS. B. KNOX, M. D.,
Councilor Sixth District.

REPORT OF THE COUNCILOR OF THE SEVENTH DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Councilor of the Seventh District is glad to report that all the medical societies in the District have functioned well; are well organized, have excellent officers, and have held the usual number of regular and special meetings. The District held a well attended and profitable Post-Graduate Conference last October and many of the society members have attended other conferences outside of the District.

The Cancer Campaign has taken on added impetus under the leadership of an active district chairman, Dr. F. Flinn, in cooperation with the Women's Field Army, and the State Society Committee for the Control of Cancer. We hope to have the entire district organized next year.

Interest in Child Hygiene and Maternal Welfare as a project, has been at a rather low ebb during the past year; although several programs in the district have been devoted to Maternal Welfare and Child Hygiene.

The usual fine spirit which has always characterized the medical profession in an emergency, has again been demonstrated by a large number of its members who have been caught in the net of the draft boards, and have spent many hours making physical examinations of the draftees. This altruistic, sacrificial serv-

ice should not go unnoticed, as the service has been rendered without thought of compensation.

The Federal Government, through the District Officers of the National Youth Administration, is seeking the cooperation of the medical profession in making physical examinations of its hundreds of members at a sub-standard fee. The profession has not been informed whether or not the information obtained from these examinations will be used for or against the medical profession. Some of the county societies in this District are well within their rights in refusing to do the work on an hourly basis, as proposed by the Government. The entire program savors greatly of State Medicine.

The Councilor of the Seventh District has attended all the regular and special Council meetings and all the county medical society meetings when he has been requested to do so. It appears that medical affairs in the Seventh District are in a very healthy condition.

Respectfully submitted,

I. H. Neece, M. D.,
Councilor Seventh District.

REPORT OF THE COUNCILOR OF THE EIGHTH DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Councilor of the Eighth District is pleased to report that the past year has been a most successful one in this District. All the component societies have had efficient officers so that the activities of their societies have been kept at a high standard. The scientific programs have been as good, if not better, than those held in the past. Many outstanding men have addressed meetings in several of the counties and the attendance at these meetings has been unusually good, drawing also on members from adjoining counties. The membership in all the counties has been well maintained throughout the district and the doctors are active in keeping up with the increasing demands on the medical profession.

The Post-Graduate Conference, held at Mattoon in November, 1940, was well attended and met with much favorable comment. It seems to be the general opinion that these post-graduate conferences should be continued but with more supervision by the Post-Graduate Committee. Miss McArthur and Dr. Camp were present at our Mattoon Conference and aided greatly in the success of the meeting.

The doctors in the district are cooperating quite fully in the examination of the selective service men. This work requires much time and with their private practice the doctors are working longer hours; yet, one seldom hears of any complaint from the doctors. In some counties, group examination is being established, which should add to the efficiency of the work and require less time of the examiners, as well as divide the responsibility. However, a well organized

board with two or more examiners, who will make adequate use of an Advisory Board, should be able to function efficiently.

Quite a number of doctors, principally those, who are members of the Medical Reserve Corps, have been called into service in the preparation for National Defense and there have been several deaths in the district, which have been reported in the State Journal; so that the number of doctors has been reduced in many communities but there is no evidence of insufficient medical care in any community.

The care of the indigent is probably more satisfactory than a year ago but several of the counties find it difficult to finance this work. As usual the doctors are the last to be paid for their services to the indigent. The proposition to turn the relief work over to the Welfare Department of the State is meeting with considerable objections, especially from the members of the Board of Supervisors and the medical profession.

It has been my privilege to attend all the regular and special meetings of the Council during the past year. I have visited most of the component medical societies of the district and have found the officers most cooperative. No serious problems have been reported to the Councilor during the past year. As a whole the medical profession in this district is alert and awake to the needs of the country and their community.

Respectfully submitted,

C. E. Wilkinson, M. D.,

Councilor Eighth District.

REPORT OF THE COUNCILOR OF THE NINTH DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Ninth Councilor District is composed of 14 counties in the southeastern part of the state. Some of these counties have a goodly number of physicians, and some have but few. There are 12 organized societies in the Ninth District; one small county has no organization, and one small county, Hamilton, is combined with Jefferson in an organization. The Jefferson-Hamilton County Society, the Wayne County Society, Franklin, Williamson and Saline County Societies have regular monthly meetings, and splendid scientific programs. Three counties, Johnson, Pope and Massac, have a tri-county organization and have monthly meetings. Some of the small counties, Edwards, Wabash, White and Gallatin, have meetings occasionally. However, many of the physicians in these counties attend the scientific programs held in other parts of the district.

During the past year much interest has been manifested by physicians in the Ninth District in good scientific programs, and the meetings have been well attended. The guest speakers have been outstanding

men from St. Louis, Chicago and other parts of the state. Many local members of the profession have contributed to these scientific programs.

During the past year the Southern Illinois Medical one of the oldest societies in the state, held its annual meeting in the Ninth District. They had an outstanding scientific program which was well attended. Aside from this, the Ninth and Tenth Councilor Districts sponsored a Refresher Course held at Carbondale. It, too, was well attended.

During the past year two malpractice suits have been filed against physicians in the Ninth District — neither of which has yet come to trial.

The examinations of conscripts for the army are requiring a great deal of the physicians' time. Needless to say, this is being done without remuneration for their services. In view of the fact that the United States Government has been, recently, prosecuting and persecuting the organized medical profession, and discrediting them before the public, it occurs to me that it is heaping insult on injury to now ask them to perform all these services for the Government gratis.

The organized medical profession in the Ninth District has kept in close contact with the members of the legislature and our congressmen, and has used every effort to acquaint them with the views of organized medicine, concerning vicious medical legislation which has been introduced by our Congress and in our State. As the new Director of Registration and Education, Honorable Frank G. Thompson, comes from my home city in the Ninth District, we are happy to report that he has been very cooperative in helping us to correct some of our embarrassing medical problems.

There are a number of physicians located in the Ninth District who are graduates from a medical school in Chicago which is not approved by the A. M. A., and who are not accepted for licensure in many other states in the Union. It is quite embarrassing for some of these physicians at the present time, who are within the draft age, to find that the school from which they have graduated prohibits their being commissioned in the Reserve Corps, Army, Navy or United States Public Health Service. It is my opinion that this humiliating situation should be called to the attention of the faculty of that school, and they should be urged to either make it a class-A school or close its doors.

Respectfully submitted,

Andy Hall, M. D.,

Councilor Ninth District.

REPORT OF THE COUNCILOR OF THE TENTH DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

Having been elected last October by the Council to fill the unexpired term of Dr. Horstman of Murphysboro, as Councilor of the Tenth District, and as it takes time to become acquainted with the duties connected therewith, my report will be rather brief as it covers only six months of activity.

A check of the attendance of all members in the district was made and those who were attending less than 50 per cent of the meetings received a personal letter urging better cooperation and asking for suggestions relative to programs or any other activity that might stimulate more interest in the meetings. The response was most interesting.

Each secretary in the district was asked to cooperate in the setting up of the N. Y. A. program in his county.

In April, a Post-Graduate Conference was held in Carbondale to which we had a very fine response by the doctors in the Ninth and Tenth Districts. The members of the Jackson County Medical Society are to be commended very highly in the way the conference was handled.

Special Activities: A Venereal Clinic was established in Sparta, Illinois (Randolph County) after it had been twice rejected by the Society. I would recommend further checking and observation of the Clinic.

The establishment of a Venereal Clinic in Jackson County was brought up but was rejected by the County Medical Society.

The Belleville Branch of the St. Clair County Medical Society is considering a Venereal Clinic in Belleville due to its close proximity to the military reservation at Scott Field.

A campaign of immunization against Small Pox, Typhoid Fever, and Diphtheria was carried out in Perry County.

Four of the counties have held interprofessional group meetings with dentists in their immediate districts.

Dr. W. C. Scrivner of East St. Louis was appointed District Chairman of the Maternal Welfare Committee to take the place of Dr. H. L. Lange who was called to service, and Dr. James A. Weatherly of Murphysboro is Vice Chairman of the district. Dr. Weatherly called together a group of doctors particularly interested in obstetrics and pediatrics for the purpose of forming an organization to study and discuss the subjects of obstetrics and pediatrics.

County	Members	Meetings	Avg. Attdce.	New Mems.	Deaths	Emeritus
Alexander	13	12	9	0	0	0
Jackson	34	12	20	2	2	1
Monroe	8	7	6	0	0	0
Perry	15	7		1	1	2
Pulaski	5	1	5	1	1	0
Randolph	19	5	9	2	1	2
Union	18	8	4	0	1	0
Washington	13	4	5	1	1	0
St. Clair—Parent	73	9	27	2	2	1
St. Clair Branch	49	11	20	2	1	2

Respectfully submitted,
G. C. Otrich, M. D.,
Councillor Tenth District.

REPORT OF THE COUNCILOR OF THE
ELEVENTH DISTRICT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Eleventh Councilor District has had a rather uneventful year. All of the component county societies have been active with regular meetings, and good membership. The Will-Grundy County Medical Society continues to have weekly meetings throughout the autumn, winter and spring, with a summer vacation. The remainder have monthly meetings with speakers secured by the Educational Committee most of the time.

No special problems have arisen in this District. The Councilor has visited all but one of the component county societies during the year. He has spent most of his available time in duties concerned with the Committee on Medical Economics and of the Council in general. We find the membership in this district the best it has been in years.

A detailed report of the membership of the county societies in this district follows:

	Membership 1939	Membership 1940	Deaths	New Mem.	Meetings
DuPage	60	81	0	7	10
Ford	17	18	0	1	4
Iroquois	28	30	1	2	9
Kankakee	58	68	0	10	9
Will-Grundy	103	105	0	2	22

The Councilor wishes to thank the officers of the component societies for their cooperation the past year, particularly in view of the moderation in their demands upon him.

Respectfully submitted,
E. S. Hamilton, M. D.,
Councilor Eleventh District.

REPORTS OF COUNCILORS-AT-LARGE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The transition from President to Councilor-at-Large emphasizes again the importance of the presidential office. One who occupies it has an unusual opportunity of meeting the members of this great society under the most favorable circumstances. He has the privilege, granted to no one else at the time, of knowing the gracious ladies and courteous gentlemen who make up the Society. That they are also good doctors goes without saying and is attested by the low mortality and morbidity rates prevalent throughout the state.

With the election of Governor Green, who numbers among his close personal friends some of our distinguished members, we have the opportunity of working more closely with the various departments of the state government. He not only cooperates

with us to the fullest possible extent but has granted us the unusual opportunity of helping him in his effort to reduce the cost of the state government. That is a situation which is probably welcomed by the Departments of Public Health and Public Welfare as warmly as it is by us.

It is highly desirable that these departments be in close contact with and have the advice of the State Medical Society. The closer the cooperation between the profession and the Department of Public Health, the better will the health interests of the citizens be served. The cost will also be reduced without any loss of efficiency. It took more than fifty years for the profession to bring about the creation of the Department of Public Health. The two groups should always entertain close and cordial relations. In the twenty years that I have been active in this Society, I have never at any time heard even the slightest suggestion that the welfare of the profession be considered at the expense of the public health or public welfare.

The Society enjoys the confidence of local, state and federal agencies in their various health activities, as will be discussed by Dr. Phifer in an address before the Sections. This enables us to influence these activities in a way that tends to reduce their cost to the taxpayers and to make more effective their service to the various groups to which they minister.

In view of the rapidly expanding activities of the government it is highly important that this happy relationship be maintained. This can be done only by considerable sacrifice of time and money by the relatively few members who are in active cooperation with these government agencies.

As this country marches rapidly toward the undesirable goal of National Socialism, it becomes increasingly important that we establish and maintain friendly relations with all government agencies having to do with health activities in order that we may at least be in the position to choose the lesser of two evils.

Respectfully submitted,

James H. Hutton, M. D.,

Councilor-at-Large.

SUPPLEMENTARY REPORT OF COUNCILOR-AT-LARGE

The National Youth Administration is a federal agency whose funds come from the social security taxes. It has two programs. One aids students to stay in school. The other is known as the out-of-school, out-of-a-job program. This is the program with which we are most concerned. Its objective is to train youths of both sexes between the ages 17 to 24 inclusive along various lines so that they may more readily obtain and hold jobs. They are offered training along many different lines: welding, sheet metal work, wood work, maid work, hospital aid, etc., etc. It is estimated that about 30,000 will enroll in Illinois this year.

This training is carried on in centers located in various places over the state. In some locations the youths work and live in the center, in others they live in the center and work elsewhere, while in still others they live at home and work in the center. The average period of training is about six months; however this varies widely.

The Health Program is the part of the National Youth Administration with which most doctors have already come in contact and which concerns the medical profession directly. It contemplates the complete physical examination of each youth.

In cases where a youth or his family is financially able, an effort will be made to have correctible defects treated by the family doctor and paid for by the family. In cases where the economic condition of the youth necessitates, community facilities will be called upon. The National Youth Administration authorities will urge the correction of these defects and aid the youth in obtaining this medical service within the resources available to him. In some instances, not yet clearly defined, the National Youth Administration will pay for this corrective treatment.

The compensation for examining these youths is, in accordance with regulations from Washington, on an hourly basis and has recently been raised in Illinois from \$3.00 to \$4.00 per hour. When a doctor is called to attend these youths in illness, he will be paid a minimum of \$3.00 per call instead of the hourly rate. It is hoped that eventually some allowance for mileage will be made.

The original estimate for the State of Illinois provided \$33,000 per year for the Health Program. This may be increased. Washington expects that about 2½% of all moneys spent by the National Youth Administration will be used in the Health Program.

I recognize the objectionable features of this program just as every doctor does. It is complicated, confused and inhibited by rules formulated in Washington. It is, of course, one form of State Medicine. However, in spite of these and other objections, it is my feeling that both the program and the medical profession will be better served if some doctor who is in close touch with organized medicine is in a position to offer counsel and advice to those who are in charge of this program.

Consequently, since early this year, I have been acting, but without formal appointment, in the position of State Health Consultant. That position has enabled me to modify the program in some ways so as to make it less offensive to the profession. The rate of pay has recently been increased. Some choice of physician is offered the trainees. Examinations may be conducted in each locality according to the wishes of the doctors in that locality. That is, they may be done in hospitals, by teams, in the National Youth Administration centers, or in doctors' offices. The National Youth Administration officials with whom I have come in contact have been perfectly willing to cooperate in every way possible within the limits of the rules laid down in Washington.

Acting in this capacity I hoped to render some service to the members of this Society, to whom I am indebted as this report has already indicated, by helping to lessen their irritation at working with a program which they cannot wholly endorse. My decision whether to accept formal appointment to this position will depend largely on the reaction of this House of Delegates.

James H. Hutton, M. D.,
Councilor at Large.

Dr. Hutton: I would like to make an additional supplementary report on the program of the National Youth Administration, my connection with it and the reasons for that connection.

In December of last year Miss Stafford, State Health Consultant for the National Youth Administration, asked me to accept the position of state health consultant. After conferring with some officials of the American Medical Association and some of my friends in the Chicago Medical and the Illinois State Medical Societies, I agreed to accept the position tentatively under certain conditions. These were briefly: that my actions should be reported to the Council of the State Society; that appointments of examiners should be subject to the approval of the Councilor in the district where the application originated; and that the men about any center should have the power to decide for themselves the method by which they might wish to make these examinations, that is, whether they should be done in their own offices, in hospitals, or in the centers themselves.

The objections to this program are as well known to me as they are to other doctors. It is state medicine, federally financed and, in part at least, lay controlled. It is conducted in accordance with rules laid down in Washington and to that extent is inelastic as all such programs are bound to be. Some of the rules may be made by people who know less about these examinations than the doctors who are making them.

In this connection I should like to point out that there are other forms of state medicine. First was the Department of Public Health, which the Illinois State Medical Society spent thirty-seven years in attempting to get established. The second, I believe, was the state hospitals for mental cases. The state society, according to records of its annual meetings, spent

many years getting these hospitals established and having them improved so that the mentally ill would have better care. The medical personnel in neither of these cases is paid as well as are men who do work for the National Youth Administration.

The W. P. A. is state medicine. Care of relief clients is state medicine. The rate of pay in these cases is not as good as that offered by the National Youth Administration. Draftees are examined gratis. We offer that as a free and willing contribution to the defense of our country. Tuberculosis, for the most part, is handled as state medicine.

The National Youth Administration is represented in its various areas by young people for the most part, who do not understand the doctor's point of view. Some ten days ago I spent three hours with representatives of various areas and tried to explain to them why some things are done as they are and why doctors are not at all rabid New Dealers. At the start of the meeting I was, to use a slang expression, "on the pan." At the close of the meeting I believe these folks understood our point of view a little better and will be able to accommodate themselves to that with less irritation to themselves and to us. They were also less hostile, I believe, to the American Medical Association.

There is a statement in my supplementary report that three dollars will be paid for making a call. That is an error. Calls will be paid for I believe on an adequate basis, but the exact rate has not been finally determined. Payment on an hourly basis is a feature that irritates me as it does many of you. That rule was laid down in Washington and so far we have not been able to change it. I do not know that we shall ever be able to change it.

The National Youth Administration should have had a booth in our exhibit space in which they could give out information regarding their activities. Miss Stafford and Miss Anderson, the State Administrator, were rather anxious to have such a booth, but rules laid down in Washington prohibited it.

In considering our attitude toward the National Youth Administration, there are two courses of action open to us. First, we can say that we will have none of it, that it is state medicine, that we do not like the present administra-

tion and will have none of it. In that case it can be turned over to the politicians and we shall have no voice in the management of it and nothing to say about the terms of employment, the method of examination or any other thing. To me it seems that it would be a very stupid thing to do.

Or we can, without endorsing it, say that we will cooperate with this program, that we will examine these youngsters in a competent way and accept the present conditions of employment, hoping that in the future we shall be able to modify them somewhat and make them less irritating. If we offer this much cooperation there is a possibility, if not a probability, that we can considerably modify some of the things we are most irritated by.

In making the decision as to which of these two courses we shall pursue, this thing should be kept in mind. This is a federal program. It has been declared part of the defense program. It will go on. If we do not examine these youths, some one else will. That some one is apt to be less acceptable to us than our own members and we shall have no further influence on the program. It seems to me much better to continue our present contacts and to strive to eliminate the objectional features of the program. I am sure that we shall find Miss Stafford and Miss Anderson sympathetic listeners to whatever we have to say.

The President: This supplementary report will be referred to the proper Committee.

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The interest and activities of county medical societies in the central part of the state have continued during the past winter months, showing even more than usual amount of individual effort among their membership. This always requires men of energy and with a high degree of ability for leadership. I can judge this from the programs and invitations that come to my desk weekly, although I have not been able to continue the high average of my attendance as in former years.

Jacksonville, on the west, and Decatur on the east, each held a post-graduate conference day with good programs and splendid attendance.

The Central Illinois Medical Society again had its autumn meeting and with a new secretary that will take the place held by the former secretary who was called to military duty, the meetings will again be held semi-annually, with the assistance of the Scientific Service Committee.

The action of the House of Delegates of the American Medical Association last June, in pledging the whole-hearted help of the medical profession by giving their services to the government, without pay, has brought about added activity of our profession. We now realize indeed that we have undertaken a very great responsibility in making it possible to successfully carry out the national Selective Service.

I can see no less energy and zeal manifested now among our profession than during 1917-18 of the last war. The men examining on the induction boards, with better organization, I think will have a lower percentage of rejections, as they have greater opportunities for experience. In the Medical Advisory Board, with nine draft boards in four counties under my observation as chairman, in seventy-two examinations there were only two rejections by the Army Board. This is possible only because of the splendid ability and cooperation of the men on this board.

At the March meeting of the Council, in Chicago, mention was made by our former president, James H. Hutton, of the necessity of members of the State Medical Society to examine the many hundreds of boys in the government N. Y. A. camps. After the Council decided by vote to do this, we have organized a group of doctors in Springfield for this work in our district, and by separating this group in two divisions we are starting to examine about 800 of these boys, about a hundred examinations each week. This task is now before us, including our draft responsibilities.

I submit this report of these activities, that you may know and understand that professionally our members are not shirking any of their responsibilities, along with their care of the sick.

There seems to be an increasing value and importance placed on membership in a county medical society, as it is noticeable that as soon as it is possible for a new man to qualify, from license or change of residence, he makes application to become a member of organized medicine.

Respectfully submitted,
 Samuel E. Munson, M. D.,
Councilor-at-Large.

REPORT OF THE PUBLIC RELATIONS COMMITTEE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

This Committee has repeatedly advised the members of the society that they were ready to take up with the insurance companies any complaints they might have with them and adjust their claims.

The committee was formed, principally, to adjust the differences between the doctor and the accident insurance companies in regard to the bills submitted to them for the care of insured persons.

We are pleased to report that a large number of the better type insurance companies have informed us

that it is their desire to see that injured employees receive adequate care when injured or when ill as the result of employment and that the regular fee schedule for respective communities shall prevail, and should not be contested.

With six years experience behind us in these relations with insurance companies, it is our opinion that most of the controversies which have arisen between physicians and the companies have developed through a decision of an office assistant or claim adjustor, who believes that he can prove his value to the company through a demand for a cut in the physician's bill. Many times when the matter is straightened out promptly, the bill is allowed in full.

Once more we wish to call attention to the fact that the Committee is ready to take up with the insurance companies any contested bill and carry it through for them. We are always anxious to be of service to the members of the Illinois State Medical Society. That's what the Committee is for.

Respectfully submitted,

W. S. Bougher, M. D.

Chairman.

Fred H. Muller, M. D.

H. W. Woodruff, M. D.,

Public Relations Committee.

REPORT OF THE MEDICO-LEGAL COMMITTEE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

It is the request of the Medico-Legal Committee that the members of this Society comply with the rule requiring that every malpractice case or claim be reported to this Committee. It is only by the members of the Society following this rule that this Committee can effectively perform its duties.

During the past year the members of this Committee have appeared before many of the component societies and discussed the problems arising in malpractice cases. It is their intention to carry on this work and, if possible, to increase the number of such meetings in order that all practitioners may have a better understanding of their legal relationship with, and responsibilities to their patients and the public.

Thirty-nine doctors consulted this Committee during the year concerning the medical features involved in malpractice suits and claims, and their problems concerned almost all phases of practice.

J. R. Ballinger, M. D.,

Chairman,

Oscar Hawkinson, M. D.,

A. H. Geiger, M. D.,

R. O. Hawthorne, M. D.,

C. U. Collins, M. D.,

T. B. Williamson, M. D.

Medico-Legal Committee.

REPORT OF THE LEGISLATIVE COMMITTEE

With a new Administration at Springfield committed to a program of economy and efficiency the General Assembly has shown a more conservative tendency in many respects than usual in recent years. While several bills liberalizing Old Age Pensions have been introduced and one which sets the minimum at \$30.00 per month passed the House, a great many proposals for increased governmental expenditures have been set aside prior to Legislative consideration because of the attitude of the Administration.

Through the influence of the Budgetary Commission, for example, many millions of dollars were lopped off from the budget estimates of the various State offices and departments so that the budget submitted by the Governor to the General Assembly was less than that submitted two years ago. No doubt independent bills carrying appropriations outside of the budgets submitted will be passed but the Governor has the power of veto and he appears to be determined to use that power in the interests of economy in the State government.

Several bills proposing to grant old age pensioners medical and hospital aid in addition to cash payments have been introduced but to date none has been voted out of Committee. This illustrates the conservative trend from the standpoint of both economy and new departures in practice.

Apparently the situation at Springfield has discouraged the introduction of radical proposals in the Medical and Public Health bills. There have been fewer bills than usual of this character.

No proposal for the independent examination and licensing of Osteopaths has been introduced up to this writing but such a bill is under consideration and will be offered at the opportune time.

A bill proposing the independent licensing of Naprapaths was introduced early in the session and somewhat later two similar measures in favor of Chiropractors and Physiotherapists but neither bill has been acted on by a Committee and therefore neither has come before either House or Senate for consideration. (Later — all these bills have been approved by the Committees before which they were pending and now on calendar of the House.)

Two companion bills relating to Psychologists S. B. 102 which would require county judges to select only registered Psychologists when in need of consultation from that profession and S. B. 103 which would establish a system of registration for consulting Psychologists, have been introduced and vigorously sponsored. Both were recommended favorably by the committee on Public Health and Welfare and both have gained headway in the Senate but neither has passed the Senate. Your Legislative Committee has opposed both bills on the grounds that they virtually give official sanction to the practice of Medicine by consulting psychologists and on the further

ground that registration is not needed for the useful practice of psychology in the proper way.

A group of important proposals House Bill 11-26 inclusive, propose simply to require that licenses and registration to pursue various professional and skilled occupations, including the practice of Medicine, Dentistry and Nursing, and employment by the State be denied all non-citizens. These bills, which are endorsed by the American Legion are regarded as essential to the protection of American citizens from unworthy competition in key occupations and from foreign agents disguised as persecuted refugees.

Another proposal H. B. 165, would establish a Medical Center in Chicago, creating a Commission which would have control over and be empowered to guide the development and beautification of the near West-side area where many of the Medical Institutions of the city are located. This praiseworthy proposal has been passed by the House and is in Committee on Municipalities in the Senate.

Of the 954 bills introduced in the General Assembly through April 24, some forty odd relate more or less directly to the practice of Medicine or public health. Very few are of a radical or highly undesirable character.

Your Legislative Committee has followed the introduction of bills very closely, has obtained and studied copies of all bills introduced and has taken vigorous action concerning all bills which seemed to warrant it. The profession has been informed through bulletins of pending measures of significance and of the activity and the attitude of the Committee concerning these bills.

Your Committee wishes to express its appreciation and gratitude to the officers and members of the Society whose steadfast confidence and cooperation has made possible the services rendered to the profession and to the public by the Committee.

A list of the more important bills of interests to the Medical Profession is appended.

MEDICAL BILLS

- H. B. 11 Required citizenship prior to medical license.
- H. B. 35 Appropriates \$65,000 for radium for cancer Research Hospital.
- H. B. 51 Requires Medical Examination of food handlers for communicable disease control.
- S. B. 12 Requires local communities to provide emergency medical care to transient paupers.
- S. B. 15 Makes chemical tests of blood, breath or urine for alcohol legal evidence in cases of motor vehicle accidents.
- S. B. 210 Provides for recovery of expense for emergency medical care provided non-pauper transients.
- H. B. 165 Creates Medical Center in Chicago, Commission to have charge of area where medical institutions are now concentrated.

- S. B. 190 State to pay all emergency medical and hospital bills of old age pensioners.
- H. B. 307 State to pay all needed medical and hospital bills of old age pensioners.
- H. B. 363 Provides for sterilizing patients in State hospitals.
- H. B. 483 Requires attending M. D.s at race tracks to examine jockeys before races.
- H. B. 344 Counties to appoint 3 M. D.s to determine whether applicants for old age pensions are 65 years old.

REGISTRATION BILLS

- H. B. 315 Creates independent examining Committee for Chiropractor licensing.
- H. B. 231 Same for Naprapaths.
- H. B. 354 Same for Physiotherapists.
- S. B. 103 Establishes registration of consulting Psychologists.
- S. B. 102 Requires the psychology member of Committee to consult with county judge on feeble-minded to be registered consulting psychologists.
- S. B. 176 Establishes registration system for electrologists (professional hair removers by electric needle).
- S. B. 203 Appropriates \$10,000 to enforce S. B. 176.
- S. B. 211 Amends Optometry Act. Applicants must study four years instead of two as present law.
- H. B. 574 Makes minimum requirement of schools of chiropody 4160 instead of 3400 hours of instruction. Four year course to qualify.
- S. B. 402 Requires annual inspection and rating of schools of nursing.

PUBLIC HEALTH BILLS

- S. B. 433 Appropriates \$2,161,321 to Department of Public Health for next biennium.
- S. B. 20 Creates a Commission for mentally handicapped children.
- H. B. 255 To replace S. B. 20, a praiseworthy measure, should be enacted.
- S. B. 244 Regulates issuing boards for continuation of County T. B. Sanitariums.
- S. B. 303 Regulates voting proposals for County T. B. Sanitariums.
- S. B. 312 Regulates voting procedure for County T. B. Sanitariums.
- S. B. 338 Regulates voting procedure for Community Nursing Service.
- S. B. 396 Creates system of voluntary certification of operators of public water supply vertment plants.
- S. B. 397 Gives State Department of Public Health more direct responsibility over public and institutional water supplies.
- S. B. 252 Defines and regulates sale of grade A Milk.
- H. B. 278 Amends district health law to permit revoke at 10 year intervals.
- H. B. 244 Requires inspection of tourist camps.

OTHER RELATED BILLS

- S. B. 455 and 415 and H. B. 287, 288 and 493 would create a milk marketing Commission and appropriate \$300,000 for its operation regulating sale and purchase of milk.
- S. B. 31 Changes time limit between premarital examination and issuance of license.
- H. B. 149 Changes from 3 to 1 day notice of intent to marry.
- S. B. 155 Amends narcotic law to permit sales to army surgeons and eliminate certain drugs with minimum narcotic content.
- S. B. 417 Adds "barbital" and all compounds of barbituric acid to narcotic law.
- H. B. 629 Much the same as S. B. 417.
- S. B. 161 Amends Workmen's Compensation Act governing selection of physician by employee.
- S. B. 194
- H. B. 340 Increases payment under Workmen's Compensation Act.
- H. B. 358
- S. B. 257 Requires vote for boards on public hospitals.
- S. B. 302 Repeals requirement of publishing notice of intent to submit to vote a board issue for public hospitals in cities under 100,000.
- H. B. 168 Establishes 2 State hospitals for incurables.
- S. B. 97 Amends birth registration law to make illegitimacy confidential.
- H. B. 199 Amends vital statistic law.
- S. B. 170 Permits State research and educational hospitals to establish infirmaries.
- S. B. 367 Changes age of physically handicapped children from under 16 to under 18 for treatment of tuberculosis and other diseases.
- S. B. 377 Regulates sale of filled milk.
- S. B. 18 Regulates sale of firearms.
- S. B. 382 Much same as S. B. 18. (note) these bills are needed safety measures.
- H. B. 217 Changes method of commitment to State institution for the mentally ill.
- H. B. 631 Re-writes law on commitment of lunatics. Designates such persons as mentally ill.
- S. B. 411 Provides that part of auto license fees be used to pay hospital expense of indigent persons injured by automobiles.
- S. B. 412 Appropriates \$504,000 to Department of Finance to pay for provision in S. B. 411.

Respectfully submitted,

Robert H. Hayes, M. D.

Chairman.

Mather Pfeiffenberger, M. D.

Harry Otten, M. D.

Legislative Committee.

Dr. Hayes: I would like to have Dr. John Neal say a word about this report.

Dr. John R. Neal, Chicago: Thank you very much Mr. President. I tried to get out of this. I politically committed suicide. I did not think it was necessary for me to carry on but some of the legislators thought it was. Some of the legislators wrote me saying, "I have gone haywire," so I have spent a couple of days a week down there. We are not getting the co-operation we should get from all over the state. To those of you who have worked and cooperated in the things we sent to you, thanks. To those who got our letters and intend to help us, I will extend our thanks if you will when you go home send me a report. Out of ninety-one downstate counties, thirty-eight secretaries have written in to me and sent a list of five to ten members from that county to help in our legislature. Out of thirteen branch societies in Chicago we got two. Some day I will not be able to talk to you gentlemen. Some day we are going to have a fight down there because you gentlemen did just what England did, you thought you were too strong to be defeated. It is a problem. Illinois is justly proud of her medical practice act. It is one of the few states that does not have a multiplicity of boards. I know we have a drugless practitioner on the licensing boards. You would let the bars down and you will have plenty of osteopaths doing surgery. I am sorry to come here and give you a scolding because of the fine work that you once did. It shows to whom the credit goes for the twenty years and the 100 per cent success we have had in this state for legislation. No other state has had our record. I do feel that some of the links in our chain are getting a little weak. This chiropractic bill will not become a law. However, it is irritating to find that you do not care out in your district. I have not written to many in this room. There are many on whom I have been working quietly — Walter Stevenson, Dr. Maley and his fine son. If you do know any of your legislators get in touch with them. The psychiatrist's bill is as bad as it could be. In the House we are not alarmed, but we are irritated. I was told by a downstate legislator last year, "we are becoming anti-organization down here. You saw what happened to Labor. Labor has been pushing us around. We are anti-education. Instead of edu-

cators coming down, there are paid lobbyists. I said to one, 'what are you doing here?' He said, 'I represent the schools.' I said, 'you are paid \$3500 a year.' He said, 'What has that to do with it?', and I replied, 'you do not care any more for education than the next person.' We are anti-civil service. We have been pushed around. The people come down here and tell us what to vote for." There are many good bills defeated and some bad ones become laws.

I want to thank individually the officers and the secretaries of the county societies for their help, and I ask you when you go home say to your county secretary, "did you send Neal a list of the doctors in the vicinity of the legislators in your district or your county?" If he says, no, then tell him to do it at once. If he says, yes, then thank him in my name.

REPORT OF COMMITTEE ON RELATIONS TO PUBLIC HEALTH ADMINISTRATION

This Committee not active — No report. I requested to be relieved of this Committee last year.

E. H. Blair, M. D.,
Chairman.

REPORT OF THE CONSTITUTION AND BY-LAWS COMMITTEE House of Delegates' Committee

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Committee on Constitution and By-Laws appointed by President Hutton at the final meeting of the House of Delegates in 1940 at the order of said House has had many meetings, beginning last September.

First the Constitution and By-Laws adopted in 1938, was carefully reviewed both individually by the members and then collectively by the entire committee. Both the wording and the interpretation of the articles were carefully reviewed with the intent of clearing up any debatable interpretations of the same as well as making those changes which the committee thought necessary to make the entire document understandable as well as workable.

It seemed advisable to restate the objectives of the society, so that they would not be subject to criticism by either state or national governmental authorities, particularly those having interest in taxation, and to assist in this work our regular accountant, Mr. Setterdahl, and our attorney, Mr. Rawlins, were consulted several times and their advice was followed in rewording some of the Articles.

We have finally evolved the draft of a revised Constitution and By-Laws which will be presented to each member of the House of Delegates at its first meet-

ing in Chicago in May, 1941. Action on this revision will be up to the House of Delegates at the Thursday meeting, so you will have until that time to read over the proposed instrument. The Committee does not feel that it is a perfect instrument, but they have made a sincere effort to make it a simpler and more workable one. They present it with the recommendation that it be accepted unless further improvement can be made at this time.

The Committee wishes to particularly thank Mr. Rawlins, Mr. Setterdahl, and Mrs. Zimmer, the Secretary's efficient assistant, for their help, advice and patience with the Committee in making this revision.

Respectfully submitted,
E. S. Hamilton, M. D.,
Chairman.

L. E. Day, M. D.,
H. M. Camp, M. D.,
E. P. Coleman, M. D.,
R. K. Packard, M. D.,
E. H. Weld, M. D.,

Committee on Constitution and By-Laws.

Dr. Hamilton: Those of you who were in the House of Delegates last year know there was a committee appointed to revise the constitution and by-laws. We have made an effort to revise the constitution and by-laws, and in justification of our efforts and results I will say it has been a stupendous task. We have had to revise both the wording and the intent of the entire constitution and by-laws. Many times the wording and the intent did not agree, and we have made an effort to correct that. We have had printed in this form a galley proof of the constitution and by-laws. This will be referred automatically to the Reference Committee. I wish all of you would read this over and take issue on any point on which you are not in agreement. If there is anything you do not want, now is the time to cut it out. I hope it will not be necessary to appoint another committee to revise this constitution and to give as much time as we did to it. We revised it in 1938 but still there were places which needed change or correction.

There is one point that I think is worthy of thought. There are a number of committees known as standing committees. There is one that did not make a report. We found that this committee has done practically nothing for the last fifteen years. While we have included it in this report we feel that it should be omitted. I intend to appear before the reference commit-

tee and make that recommendation. That is the Committee on Public Health Administration. If there are any other committees that you think should suffer the same fate it is a very good time to do it.

The entire section on discipline has been completely rewritten. In this section on pages 10 and 11 we have confused slightly the procedure with the duties of the committee and the way in which they should make their report. We have endeavored to show this in the galley proof — I think very unsuccessfully. I will endeavor to appear before the Committee and present a section which I think will improve that.

I think this is one of the most important things that is coming before the House of Delegates at this meeting and it is something you should give a half hour to an hour to.

REPORT OF THE BENEVOLENCE FUND COMMITTEE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

You will recall that at our last annual meeting held in Peoria, a change in the By-Laws created a Committee on Medical Benevolence and recommended the selection of a committee of three to take care of this work. In compliance therewith, Dr. Charles H. Hulick, Shelbyville, was elected to represent the southern part of the state; Dr. Clarence H. Boswell, Rockford, the north central; and Dr. John S. Nagel from Cook County, as chairman. At the next meeting of the Council, your chairman appeared before that body and asked for a grant of \$5,000.00 from the general fund to carry on this work. This was unanimously approved. The committee then announced through the Illinois Medical Journal and the Bulletin of the Chicago Medical Society, that they were ready to function. They gave in detail the procedure to be followed as approved by the Council.

Our first call for assistance came three days before Thanksgiving through a county medical society. The chairman, not waiting for the long investigation, requested Dr. Camp to forward \$25.00 for the holiday emergency and our subsequent investigation placed her (a widow) on our list for monthly aid. Our second call came two days before Christmas from the secretary of a county medical society. He described her (a widow) condition as "destitute." Again the chairman acted in what he thought was a "holiday emergency," and a grant of \$25.00 was sent to the lady. Subsequent investigation pointed to the fact that the destitution was somewhat of a myth and she is not on our list.

At present we are rendering aid to four families. All of these requests came from women, two of them

widows and the other two wives of invalid husbands (Woman's Auxiliary please note). In this connection, the chairman wishes to state that in November or December he contacted the president of the Woman's Auxiliary to the Illinois State Medical Society, in regard to raising funds for this cause and urged that they give their unqualified support.

The response from County Auxiliary organizations on May 2, was as follows:

Adams County	\$ 31.00
Bureau County	17.00
Chicago	493.00
Kane County	35.00
Livingston County	10.00
Logan County	5.00
Peoria County	122.50
Rock Island County	25.00
Sangamon County	100.00
St. Clair County	20.00
Tri-County (Massac-Pope-Johnson)	10.00
Vermilion County	38.00
Will-Grundy County	51.00

Total\$957.50

The Committee feels that there must be more of these people who are deserving of help and earnestly requests the local officers of county societies and the membership as well, to bring these to our attention, for we have no other means of ferreting them out.

Respectfully submitted,
John S. Nagel, M. D.,

Chairman.

Charles H. Hulick, M. D.,
Clarence H. Boswell, M. D.,

Committee on Medical Benevolence.

Dr. Nagel: One of the reasons for publishing these pre-convention reports is to acquaint you with what has been done by the various committees throughout the year. I hope you have read the short notice that has been published by the Benevolence Fund Committee. As it is a new committee I think it is worth while for us to take a few moments of your time to get before you something of what we have done and something of what we are doing. More particularly, I come before this House of Delegates to urge you as delegates and you as officers of your county medical societies to try and locate these individuals who are in need of help. Up to the present writing, if I am correct, we are assisting eight families. They consist of four widows and their families, two or three families of doctors who are invalidated to such an extent that they are incapable of earning a livelihood. I call your attention particularly to this because I want you men to go back and get your county society and your woman's auxiliary to aid in this work. The ones who are clamoring to us for help are not the

doctors themselves but the widows of doctors and the wives of invalided doctors. If the women in your district are not sufficiently interested in joining the Auxiliary, try to interest them in this work. I have just been informed by Mrs. Dooley, the President of the Woman's Auxiliary of the State Society that to date they have collected \$1106 to aid in this fund. I think that is extremely remarkable when you consider that they got a very late start; it was not until late in November that Mrs. Dooley got working on the various auxiliaries. I think they have done really a very wonderful work in collecting that amount of money.

I want to congratulate Vermilion County for having a 100 per cent Woman's Auxiliary. That is something that some of the rest of the county societies should try to do.

One of the reasons I am taking your time is called forth by a paragraph of a letter written to Mrs. Dooley: "I am going to ask a favor of you. Would you write a letter explaining the benevolence fund to _____ County Medical Society. We have heard nothing about it. I asked them at a recent meeting if they would give some money and they were very much surprised to know such a fund existed. They would like to know more. If you have any pamphlets will you send them to them."

I have not a copy of my reply, but I told them that there were two members of that county society in the House of Delegates on both Tuesday and Thursday of last year when the change in by-laws was passed. I told them that in November, December, January, February, March and April a full page notice was carried in the Illinois Medical Journal explaining in detail what this benevolence fund was. In addition, the State President, Mrs. Dooley, wrote a special article for the January issue of the Journal. I told her that any attempt to explain it on my part would be futile.

We are helping these people. Of course we are not giving out any names. They are in the files and anyone who wants to go down and look at the names can do so. I think the Committee is quite careful. We slipped on one occasion in helping a widow described as penniless but upon investigation this was found to be somewhat of a myth. That will happen once in a while. I do want you men to go back in your district and

look after these people and let us know about them. Dr. Hulick is in Shelbyville, Dr. Boswell is in Rockford, and I am here and we have no way of looking up these people, so if you will do this and send in the names we shall make our investigation. Mr. Chairman, I would like to have you call upon Dr. Hulick and Dr. Boswell.

Dr. Hulick: I have nothing further to say than what Dr. Nagel has told you. We try to investigate these cases. Where they are deserving we try to give them benefit. We ask the secretary of the county society for identification and we also investigate outside of that, but some secretaries have been called to the Army and new secretaries have come in. It is my impression that if each county society would investigate and especially in the smaller communities downstate, we would find a good many who needed help.

Dr. Boswell: I think it is fine work and a good committee. I am glad to work under Dr. Nagel.

The President: We need more auxiliaries who will bring in more money.

REPORT OF THE EDUCATIONAL COMMITTEE

May 1, 1940—April 30, 1941

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

A report of the Educational Committee should be a very personal one as it represents hundreds of individual contacts made by physicians of the state with their professional colleagues, with individual patients and with groups of laymen. Every time a doctor interviews a patient or addresses a public audience, every time an article pertaining to the medical profession appears in the press or a radio talk is given by a doctor, and every time county society holds a meeting which is announced in the papers, the public is fortified with confidence in their continued well being by the ever growing activity of the members of the medical profession and of the continued advancement of medical science. It is the responsibility of the Educational Committee and of all members of the medical profession to instill this feeling of admiration and confidence into the minds of more and more persons.

The Educational Committee has endeavored through the years to give to the public the true story of medicine, of its achievements, its aims and its high code of ethics. Surely such a program has not only benefitted the people but the doctors as well.

It behooves any organization to look back at the end of a year and review its aims, its program and its accomplishments. While reports of the Educational Committee have appeared monthly in the Illinois Med-

ical Journal, the following summary for the year appears as a completed canvass with the highlights emphasized. Figures cannot tell the whole story. They must be interpreted into personal equations. The activities of the Committee were clearly defined several years ago under a number of distinct headings. They serve as the logical analysis for the annual report.

As this report is a review of the work during the period beginning last May, mention must be made of the 1940 Hundredth Anniversary meeting to which the Educational Committee gave full cooperation. Exhibitors were secured for the Hall of Health, material was prepared for the Hall of Health Handbook, assistance was given the publicity director, moving picture films were scheduled, photographs and copies of scientific papers were obtained and special material compiled for the Illinois Medical Journal.

AID TO COUNTY MEDICAL SOCIETIES

Approximately half of the budget received by the Educational Committee is returned to the county medical societies of the state through speakers, publicity, notices, and special material compiled for individual members.

The report of the Scientific Service and Post-Graduate Committees gives in detail the services especially designed for the county medical societies. It is notable that the service has increased steadily throughout the years.

Practically all counties used this service. Every doctor in the State of Illinois has received at least one notice from the Educational Committee inviting him to attend either his own county society meeting or that of an adjoining county.

It is gratifying to the Committee that so many counties are holding regular monthly meetings with speakers either from their own membership or secured through the Scientific Service Committee. One county has had weekly programs secured through this Committee. Some societies made their programs early in the summer for the ensuing year thus assuring their membership excellent talent and interesting subjects.

The Educational Committee has tried to keep the county societies informed of new program material, and of medical advances and discoveries. Letters were sent to officers telling of the pneumonia programs available through Committee cooperation with the Pneumonia Control Officer of the State Department of Public Health.

The Illinois Society for the Prevention of Blindness proved what can be done through cooperation with county medical societies in carrying on a program of common interest. Forty-seven members of the Medical Advisory Council of the Society, representing that many counties, presented the paper "Conserving the Eyesight of School Children in Illinois" before their colleagues. This was a splendid effort and worthy of special mention.

The response of doctors throughout the state to the calls of the Committee has been remarkable. Many

times the acceptance of a request to appear before a county society, entailed real hardship, but the reports indicate that the effort was appreciated.

5,880—releases announcing medical meetings were sent to Illinois newspapers during the year.

15,828—notices were mimeographed and mailed to doctors. To many secretaries of county societies this is an important service.

A number of counties sponsored inter-professional meetings. These were attended by members of the medical and dental societies and the bar association, and proved extremely valuable. They should be encouraged in all parts of the state.

The Committee assisted the Southern Illinois Medical Association with its annual meeting. Similar help was given the Northern Illinois Medical Association, the Tri-County Medical Society and the Kankakee County Medical Society in its special clinical day.

Special publicity was given to public meetings sponsored by the Chicago Medical Society.

POST GRADUATE EDUCATION PROGRAMS

A complete record of these programs appears in the Post-Graduate Committee report. Mention should be made of the fact that the office of the Committee secured all of the speakers for these programs, furnished special publicity to the newspapers, and mimeographed and mailed copies of all papers presented to each doctor attending the first five meetings. The printing and mailing of invitations to doctors was done in the office of the Secretary of the State Society.

These conferences proved of wide interest and an opportunity was given every doctor in the state to attend at least one of them.

SPEAKERS' BUREAU

490—Popular health talks were scheduled through the Committee. Every type of organization was serviced. Reports complimented doctors for their ability to tell the story of good health in popular language.

A Parent Teacher Association program chairman states — "Very well received. Covered subject of inoculation and preventive medicine very thoroughly from layman's point of view, and showed great understanding. Incidentally, the subject was doubly interesting because of the effort now being made by the P. T. A. for inoculation and immunization of school children."

A superintendent of county schools reports — "Command of his subject is well rounded and his delivery is exceptional. He handled the subject very, very well." This talk was given before 550 teachers.

A Home Bureau Advisor writes — "The sincerity of the speaker stimulated a trust in the presentation of his material. His pleasing personality and thorough understanding of people made the meeting enjoyable as well as the facts made it an enlightening meeting."

The President of a Woman's Club reports — "His talk was informative, witty and at all times strictly on the subject. Have heard nothing but praise for it. He answered questions from the audience at its close. Thank you for his services."

The Woman's Association of a large church reports — "Talk was well accepted. He spoke informally and made himself clear to all."

One doctor gave a talk on "The Heart" before the Sophomore Class of 800 students in one of the large high schools of the state. The Committee furnished copies of its article "The Ace of Hearts" for distribution following the lecture. Comments from the chairman are highly interesting, "I delayed writing to you until I had made a satisfactory check-up at school through the health teachers. The report was that the students appreciated the talk greatly. The bulletins were distributed after the lecture and read with real interest. Many mothers have told me of the fine summaries of the doctor's lecture their children gave at the dinner tables that evening. They appreciated this sort of education. They also mentioned having read the bulletins on the heart that the children brought home. The 800 bulletins reached a much larger audience than I had ever hoped. Thank you for your help in this effort."

Doctors were scheduled to address the various men's organizations of Peoria during the week of the Annual Meeting.

Speakers appeared before many county teachers' institutes.

Thousands of school children were reached during Youth Week when doctors gave informal health talks before assemblies.

Many programs on Cancer and Care of the Feet were given before County Home Bureaus.

A series of programs were arranged for Y. M. C. A.'s and for one B'nai Brith.

Through the generosity of Dr. F. L. Rector, the Committee was able to have him present about 20 lectures on cancer before high school students in Chicago. He addressed 25,000 boys and girls.

Speakers were secured for laity programs sponsored by the Women's Auxiliaries of the different counties.

A President of one of the larger County Auxiliaries conferred with the Educational Committee and was able to secure speakers before all of the important lay groups of her county. This was an outstanding piece of work and resulted in a large public meeting devoted to the subject of Maternal Welfare.

RADIO PROGRAMS

Due to the demand for time over the radio by political parties during the conventions and presidential campaigns and the war situation, time over some stations was curtailed. However the Committee reports 180 programs presented from Chicago stations, with copies of the scripts going to down state counties for rebroadcast from local stations.

The Committee wishes to thank Mrs. S. C. Kehl, wife of a Chicago physician, who, because of her interest in radio gave so liberally of her time and energy in planning unusual programs for the Committee. Mrs. Kehl took the material furnished by the Committee, put it in the form of dialogues or dis-

cussion between herself and different doctors. These were breezy, full of human interest, gave good information and proved very popular.

On April first she developed a series of quiz programs in which various clubs were invited to participate. The manager of Station WAAF was highly pleased with the results of these programs and requested that they be continued.

The Chicago Board of Education appointed one of the Health Supervisors of the Chicago Schools to present a program on the subject of Acne with Mrs. Kehl. This was announced in all of the Chicago schools.

Copies of radio schedules were furnished to interested individuals throughout the state. This was in keeping with the Committee's desire to keep the public informed of what is going on in the medical world.

NEWSPAPER SERVICE

91—New "Do You Know" articles were written and approved during the year. The real value of this type of release is that it discusses health topics of current interest; for example, material was written which related to the political conventions showing the progress made in medicine since the first conventions and gave historical medical data concerning Philadelphia and Chicago, the two convention cities. Special material was written on "Mother's Day," Thanksgiving, New Year's, and Fourth of July Accidents.

250—Newspapers in Illinois use the material regularly, many over the authority of the local county medical society. Some editors have occasionally requested special articles to fit their current problems.

The clipping service indicates the articles are popular and widely used.

The New Catholic World has been recently added to the list of newspapers and the column appears in a prominent place in that paper.

13,906—releases of the "Do You Know" column were sent to newspapers during the year.

Last fall The Chicago Daily Tribune requested the Committee to give the pollen count each day. At the suggestion of the Committee the Chicago Allergy Society cooperated by furnishing the information to the Tribune.

Special publicity was given to the public meetings sponsored by the Chicago Medical Society.

The Committee furnished publicity regarding county medical society meetings whenever the necessary data was submitted.

MAILING LIST

96,000—Mimeographed sheets — "Do You Know" were sent to a mailing list of 2,205 prominent lay leaders, health education directors of schools, public libraries, home advisers, health chairmen, and others in all counties of the state.

Scarcely a day passes without a new request from someone wishing to receive the material which is sent out twice a month.

The comments received from individuals on the mailing list really tell the story; they show how the material is used and its value:

A Public Health Nurse — "I take this opportunity to thank you for your courtesy in retaining my name on your mailing list. This publication is of great benefit to me in my work."

From a Health Chairman of a P. T. A. — "Please add the name of _____ to your mailing list. He is an English teacher at this large colored school. Says he will use you 'Do You Know' in class work."

From a student — "I am a student of _____ Teachers College in a Health Education Class. I would appreciate it very much if you would send me 30 copies of each of the following 'Do You Know' material so that I can give each one of my classmates a copy."

From a professor at Ann Arbor, Michigan — "May I again thank you and assure you of the worth of the 'Do You Know' pamphlets. Mentioning them to the city school physician, who was very much interested, he expressed a desire to be placed on your mailing list."

From a WPA District Supervisor of Education — "The Adult Education Project operating in Southern Illinois is very much in need of printed factual material relative to the subject of health. We shall be very happy to secure any or all education material made available through your Society."

From a Director of the Illinois Congress of Parents and Teachers — "May I have material for newspaper publicity and articles to be read by members at informal meetings, please."

From a High School Teacher — "As a teacher of sociology, I should like to request any literature you issue suitable for class reference to be studied by my seniors, age 16-19. I have borrowed from time to time your 'Do You Know' series and find them most useful. Are any of the back numbers available? If so, will be glad to receive them along with the current ones."

From the Salvation Army Headquarters — "Thank you very much for putting us on the mailing list to receive the health articles released by the Educational Committee. We will enjoy receiving and using this material."

Urban League Nursery School — "It will be greatly appreciated if you will place this Nursery School on your mailing list for the 'Do You Know' Column."

School Nurse — "Will you please send me the publications that are released by you at intervals. I would appreciate getting these regularly, as they would be very helpful in my work as a school nurse."

Health Department of a school — "We are organizing a health department at our school and would appreciate all the helps you can send us. Please add my name to your mailing list for your health bulletins."

From Health Chairman — "As Health Chairman of the _____ High School and the _____ Grade School Parent Teacher Associations, I would like to know if it would be possible to put my name on your mailing list to receive copies of 'Do You Know' for all of the P. T. A. group. We have an average of 75 at both schools. In case any copies are left over after

the meeting, these will be turned over to the High School Health Teacher who said he would appreciate getting them. This is such good reading matter that I thought it would not hurt to write to you and ask for it."

From Chairman of Public Health of a Woman's Club in a rural area — "I have enjoyed and gained so much valuable information from your 'Do You Know' sheets that I would like to ask a big favor. I have read these papers to our club when time would permit it and the women have all enjoyed them but I cannot always get time to read them. We do not have a village paper so I can't always get them published or around to the various members to read. Could you possibly send them to the list of members whose names I am sending. They would all like to receive them."

Thousands of copies of our articles have been distributed at committee meetings of various organizations, at Summer Round-Up meetings, and at annual meetings of the Illinois Congress of Parents and Teachers and the Illinois State Nurses Association.

The principal of a school having an attendance of 1,000 children asked the Committee to furnish him with enough copies of all articles so that each child could take material home. This seemed to be almost impractical, so the suggestion was made by the Committee that stencils of the articles be given him and the project be completed by the students. The principal liked this plan so he is receiving a stencil of an article of current interest each week, which is then run off by someone in the school, and a copy furnished each child to take home to his parents.

500—Copies of material were furnished to the Chicago Teachers College to be used by students in Health Education Classes.

300—Copies were furnished a downstate high school for the same purpose.

800—Copies of an article on Heart Disease were furnished a high school.

Material was sent to the O. A. Thorpe School of Chicago where "A Health and Safety Center has been organized for the purpose of making surveys and inquiries into the health conditions and habits of the children in that district and to measure and examine them with a view to recommending rehabilitative and corrective measures in so far as possible."

Furnished copies of "Safe at Home," "How Is Their Vision," "Burns" to the National Education Association of United States for use by the Safety Education Project of the Research Division.

Material was also furnished the Illinois State Physical Education Association meeting held in Chicago.

CONTACTS WITH OTHER GROUPS

Every piece of literature bearing the name of "Illinois State Medical Society" given to the public is a contact with some individual.

Contacts have been maintained with the various committees of the Illinois State Medical Society, some of whom work through the public. Among these may be mentioned the Maternal Welfare Committee, The Committee on Cancer Control, the Woman's Auxiliary.

Definite assistance has been given the Illinois Federation of Women's Clubs, the Chicago Council of Jewish Women, the Illinois Congress of Parents and Teachers and the State Commander of the Woman's Field Army for the Control of Cancer.

The Committee notified hospitals of the National Health Conference held in Chicago.

Letters were written to all Catholic schools offering special health programs.

The Committee cooperated with the officials of Youth Week.

Material was prepared for the annual meeting of the Physical Education and Recreation Directors of the United States and as a result 100 new names were added to the mailing list.

Letters were sent to 500 Summer Round-up Chairmen giving names of officers of local medical societies. Letters were sent to secretaries and presidents of all county medical societies. This it was hoped would bring together the two groups in order that a cooperative plan might be worked out to the benefit of all concerned.

The Committee appointed a representative to the Coordinating Committee on Child Health organized in January, 1941. Three meetings have been held and it is hoped that a definite plan may be outlined acceptable to the various organizations of the state particularly interested in the health of Illinois children.

Moving picture films were secured for medical societies and lay meetings. Most of these were obtained from the State Department of Public Health.

Pictures of all Past Presidents and Secretaries of the Illinois State Medical Society were procured for the Illinois Medical Journal.

Furnished list of "Coming Meetings" each month to the Journal.

Loaned several hundred package libraries to doctors of the state. Compiled special libraries upon request.

Assisted officers of Secretaries' Conference, Veterans' Service Committee, and Councilors.

Exhibit material furnished the annual meeting of the Illinois Congress of Parents and Teachers in Belleville.

IN MEMORIAM

It is only fitting that the Educational Committee take this opportunity to pay tribute to Doctor Charles J. Whalen who was a member of the Committee for many years. In fact it was Doctor Whalen who introduced into the House of Delegates in 1922 the resolution creating the Educational Committee. He was always an interested member, loyal and faithful to the many duties required of him as a member of the Committee. His counsel will be greatly missed but his devotion to the cause of medicine will be carried on through the activities of the Committee.

Respectfully submitted,

R. R. Ferguson, M. D.,

Chairman.

James H. Hutton, M. D.,

Vice Chairman.

Charles P. Blair, M. D.,
C. G. Farnum, M. D.,
Otis O. Stanley, M. D.,
Jean McArthur,

Secretary.
Educational Committee.

REPORT OF SCIENTIFIC SERVICE AND POST-GRADUATE COMMITTEES

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

We submit to you herewith in two separate paragraphs, detailed reports concerning the activities of your Scientific Service Committee and its Advisory Committee, the Post-Graduate Committee:

THE SCIENTIFIC SERVICE COMMITTEE

This Committee has functioned actively during the current year and has carried scientific programs to county societies throughout the state. Our list of speakers both from the larger cities and the teaching centers as well as from the farflung county societies has been maintained on the same high plane as in previous years. The requests for these speakers and programs by the county medical societies have been highly satisfactory. In the interests of simplicity and comparison we have set up herewith tables showing the number of county societies serviced for the past five years — 1936, 1937, 1938, 1939, 1940 and 1941.

TABLE SHOWING GROWING ACTIVITIES OF THE SCIENTIFIC SERVICE COMMITTEE

Year	No. Counties	
	Serviced	No. Speakers
1936	47	139
1937	42	162
1938	54	327
1939	66	334
1940	71	386

CLASSIFICATION OF SUBJECTS PRESENTED

Allergy	1
Anesthesia	1
Arthritis	9
Autopsy	1
Burns	1
Cancer	9
Communicable Diseases	7
Dermatology	9
Economics—Medical Preparedness, Aviation, etc.....	24
Endocrines	8
Eye, Ear, Nose and Throat	17
Fractures	12
Gastrointestinal Diseases	16
Goiter	4
Head Injuries	1
Heart	20
Hematology	7
Infantile Paralysis	7
Internal Medicine	24
Meniere's Disease	1
Neurology	10
Obesity and Diet	6
Obstetrics and Gynecology	59
Orthopedics and Bone Tumors	9
Pathology	6
Pediatrics	10
Physical Therapy	4
Pneumonia	20
Psychiatry	4
Public Health	1
Radium—X-Ray	5
Rectal Diseases	4
Related Problems, Doctors and Dentists	4
Respiratory Infections	1

Sterility	1
Sulfanilamides	13
Surgery	13
Tuberculosis	3
Urology	15
Vascular Disease	13
Veneral Disease	3

In addition to this service, the Scientific Service Committee has handled or supervised the mailing of notices concerning county society meetings and other publicity pertaining thereto.

During the current year the Scientific Service Committee has had several meetings with the parent committee (Educational) and its Advisory Committee, the Post-Graduate Committee. At these meetings the entire broad problem of Post-Graduate Education was thoroughly discussed with the view of further enlarging its scope.

During the month of February, 1941, the Educational, Scientific Service and Post-Graduate Committees met with the National Health Conference at the Palmer House in Chicago. At this meeting a luncheon was arranged with the chairmen of the Post-Graduate committees of a number of neighboring states and views interchanged concerning Post-Graduate activities.

THE POST-GRADUATE COMMITTEE

The Post-Graduate Committee of the Illinois State Medical Society, acting under authorization of the House of Delegates, assisted the Scientific Service Committee in conducting nine conference days during the past year. During the previous year (1939-1940) four such conference days had been authorized and conducted and their success led to the extension to nine such days in this current year. These conference days held under the auspices of the respective councilor districts varied somewhat as to duration and agenda best fitted for individual localities. They were in the main ultimately successful and their location, types of programs and number of attendance is appended hereto:

Date	Councilor District	Place of Meeting	Number of Papers	Attendance
Oct. 3	2nd	LaSalle	8	225
Oct. 8	7th	Decatur	8	132
Oct. 31	5th	Bloomington	7	235
Nov. 7	8th	Mattoon	9	175
Dec. 4	6th	Alton	8	130
Apr. 3	9th, 10th	Carbondale	Heart Clinic 6	110
Apr. 9	11th	Joliet	Heart Clinic 5	125
Apr. 23	1st	Freeport	7	141
Apr. 24	4th	Galesburg	4	115

The sixth of these conference days held in Carbondale on April 3rd instituted an innovation which proved both practical and interesting, to-wit: A heart clinic was conducted from 11 a. m. to noon followed by a complimentary luncheon. This was followed by speakers at 1 p. m., 2 p. m., and 4 p. m. The interval between 3 and 4 p. m. was given over to a round table

discussion on the subject matter covered up to that time. A dinner meeting in the evening was followed by two more speakers, thus concluding the program. The round table idea was new and allowed a free discussion and interchange of ideas and was enthusiastically received.

In conclusion, the Scientific Service and Post-Graduate Committees wish to make the following statements:

1. An expression of satisfaction with the progress made in the entire routine servicing of county medical societies.
2. A recommendation that Post-Graduate Conferences be continued as the most practical method of carrying concentrated information on scientific matters to our wide flung county medical societies.
3. A plea to county secretaries for suggestions for improvement of this service.
4. The gratitude and appreciation of these Committees to the county secretaries, Doctor Harold M. Camp, the councilors, the program committees, the members themselves for their attendance and whole hearted support and finally the cooperation and assistance of Jean McArthur and her associates who have made all this work very simple for the Committees.

Respectfully submitted,

Robert S. Berghoff, M. D.,
Chairman.

James H. Hutton, M. D.,
J. S. Templeton, M. D.,
Frederick H. Falls, M. D.,
H. N. Rafferty, M. D.
Walter Stevenson, M. D.,
Harold M. Camp, M. D.,

Scientific Service Committee.

R. R. Ferguson, M. D.
Chairman.

Robert S. Berghoff, M. D.,
Co-Chairman.

Charles P. Blair, M. D.,
F. Garm Norbury, M. D.,
C. B. Ripley, M. D.,
B. E. Montgomery, M. D.,
Post-Graduate Committee.

REPORT OF THE MEDICAL ECONOMICS COMMITTEE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The work of the Committee on Medical Economics has not been particularly spectacular the past year. Either as individuals or as small groups, they have investigated any new problems arising in the economic field as well as continuing to keep abreast of old problems, which are still unsolved.

The Committee has reported regularly to the Council and has been guided in its activities by the advice and orders of that body. The relations with that body have been most pleasant.

Writing and editing the Medical Economics column

has continued to be the most difficult and probably most important work of the Committee. The officers of the Society have been most cooperative in this work. Both Dr. Whalen and Dr. Ohls, editor in chief and managing editor respectively, were most helpful throughout the past year as all those previous, and their advice, assistance, and counsel will be sorely missed during the coming years. The House of Delegates should decide on the value of the column and its future.

Another important work of this Committee has been helping in the education of the profession and the public by addressing both medical and lay audiences on the problems of the medical profession and the dangers that threaten it. Talks have been made all over the state by members of the committee, assisted by a few interested men not on the committee. This work must be expanded and enough men must be prepared and ready to take care of all the demands made for speakers on economic questions.

A special Committee, headed by Dr. Hartman of Macomb has continued the study of the problem of voluntary health insurance. In the March issue of the Illinois Medical Journal he presented a resume of the reasons we are waiting in Illinois before making a definite decision as to the proper course for us to pursue in this matter. We hope that you have all read this article and if you have not, please do so before the annual meeting. At this time the Committee does not advise any definite action by the House of Delegates of the Illinois State Medical Society.

Much legislation both federal and state has come up affecting the medical profession. Fortunately little has been passed definitely injurious to the medical profession, and this is because the medical profession has been alert and on the job. The recent decision in the District Court of the District of Columbia, in which the American Medical Association was found guilty of violation of the Sherman Anti-Trust Act is definite proof that the medical profession is still under fire. Of course the medical profession must remain conversant with proposed legislation and at the same time in touch with their representatives in Washington and Springfield. The article in the April issue of the Illinois Medical Journal announcing that graduates of foreign medical school are no longer eligible to licensure in Illinois is of great importance to the medical profession and can be attributed in part at least to the efforts of the Illinois State Medical Society.

The chairman wishes to thank all members of the Committee, the officers of the State Society, the Educational Committee, as well as to express appreciation of the work of the late Drs. Whalen and Ohls for their help during the past year. We trust that the same cooperation will be accorded the chairman of the Committee for the next year.

Respectfully submitted,

E. S. Hamilton, M. D.,

Chairman.

H. M. Camp, M. D.,
E. P. Coleman, M. D.,
W. M. Hartman, M. D.,
J. H. Hutton, M. D.,
R. K. Packard, M. D.,
Ralph P. Peairs, M. D.,
C. H. Phifer, M. D.,
C. B. Ripley, M. D.,
C. E. Wilkinson, M. D.

REPORT OF THE VETERANS' SERVICE COMMITTEE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

In the past year the Veterans' Service Committee has leaped into considerable prominence; perhaps not so much in a direct way, but rather indirectly. This has occurred in spite of the controversial nature of some of the Committee's programs.

The Director of "Selective Service" recognizing this fact approached organized medicine for assistance in building up an efficient organization for this service.

The present Director exerted considerable pressure in National Executive Committee of the American Legion to prevent a resolution giving the chiropodists the same privileges and rank as any other medical officer.

Last, but not least, the Second District American Legion Department of Illinois felt it important enough to consult the Chicago Medical Society regarding the establishment of a "Blood Bank."

Your Committee feels that the above indicates a distinct report of progress.

Respectfully submitted,

F. O. Fredrickson, M. D.,

Chairman.

T. B. Williamson, M. D.,

W. C. Burkett, M. D.,

T. B. Knox, M. D.,

F. G. Norbury, M. D.,

R. P. Peairs, M. D.,

Veterans' Service Committee.

REPORT OF COMMITTEE FOR CARE OF THE INDIGENT

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

This committee was appointed by the president, Dr. J. S. Templeton, last summer, chiefly to confer with township officials and the I. E. R. C. and to attempt to formulate some plan that would take care of the numerous complaints that have been received, due to the varying rates of medical fees throughout the downstate area and difficulties with various supervisors.

The Chicago counterpart of this committee has been functioning very efficiently for the last seven years, under the competent management of Dr. Charles H. Phifer and his associate members. We hope to profit by their experience and furnish the means of helping the downstate physicians with their indigent care

problems, but the downstate problems are quite different from those in Cook County largely due to geographical reasons.

There have been three meetings. As a result, questionnaires were sent out to all the downstate secretaries and replies were received from practically all of them. A review of these questionnaires indicates that there is a wide discrepancy between the fees paid by supervisors in various sections of the state, some of them being very reasonable and others ridiculously low.

Each of the one hundred and one downstate counties is divided into numerous townships and everyone of these is represented by a supervisor who is subject to change every two years. The supervisor has sole charge of the poor relief, including their medical care in his township, and there is no authority over him to in any way influence his decisions, whether they are good or bad. The relationship of the individual doctor to the numerous supervisors in his county varies decidedly according to the qualifications of the supervisor. In many places a supervisor of experience who has been reelected many times has been found to work in harmony and cooperate with the medical men in his community, but in all too many instances the supervisor has failed to understand the needs of the indigent under his supervision, or has failed to understand the viewpoint of the doctors who care for them. As a result of this multiplicity of township officials, several abuses have developed, chief of which has been the employment of a township physician on a part time basis. This man, usually on a very meager salary, is expected to care for an overwhelming pauper load as well as take care of his own private practice. As a result, this committee has been able to collect records of many instances in which the indigent patient did not receive the best of care, due to the fact that this heavy load necessitated very superficial methods of examination, diagnosis, and treatment. We feel that the House of Delegates should disapprove of this method of care of the indigent sick because of its obvious inefficiency. A second abuse which is quite common has been that a great many supervisors, with the intention of lowering the costs of medical care in their townships, have insisted upon fees so ridiculously low that in some communities they are below the actual overhead expenses of the doctor.

Recently a member of this committee, upon invitation, addressed the annual meeting of state township officials and made the suggestion that in those localities where the medical fees for indigent care were below actual overhead, that an upward revision should be made. These officials expressed a willingness to meet with a committee from each medical society to discuss this matter, and it is the recommendation of the committee that the House of Delegates approve a suggestion to the effect that medical relief charges in surgical cases be not less than one-half the minimum rate for that community. The committee further recommends that each county society appoint a com-

mittee to meet with a similar committee from the local board of supervisors, have a friendly meeting, and discuss the medical fee problem in those communities where such fees are too low. Also that they express a willingness to cooperate with the supervisors by censoring their own membership in any cases where supervisors feel they have a just complaint. It is believed that such a program will be a decided benefit to both our membership and those individuals who receive medical care on a relief basis.

The committee has found a few instances where employment of a township physician has met with the approval of the local medical society. We feel that in these exceptional cases it is correct to continue this method, but where this condition does not exist we feel that the House of Delegates should disapprove of this method of care for the sick because of its obvious inefficiency.

In each downstate county the Old Age Assistance division of the Department of Public Welfare maintains an office to handle the problems of its clients, and this includes their medical care. It is administered through the County Welfare Committee, which is a permanent organization. We have been told that the Governor has been considering the advisability of having all indigent medical care administered through these county welfare committees. A possible advantage is that the County Medical Society would be able to meet with a small group which would not be changing from year to year, and that this small group would be amenable to instructions from their superiors, who so far have established cooperative relations with the State Medical Society. Our committee has considered this possibility with interest, and while not ready to make any recommendation at the present time, feels that it should be given serious thought, and that it may be possible, if this change is made, to work out a method of contact that will be a mutual benefit. Further information will be available within the next few months and will be publicized to the membership through the issues of the Journal. The committee feels that it may be able to accomplish some things of real benefit for the society's membership as well as for the indigent sick.

Respectfully submitted,

E. P. Coleman, M. D.,

Chairman.

Frank Deneen, M. D.,

W. C. Blaine, M. D.

Report of Committee for Care of the Indigent.

PART II.

REPORT FOR CHICAGO

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Advisory Committee of the Chicago Medical Society on the Medical Care of the Indigent and Recipients of Unemployment Relief, desires to submit to the House of Delegates of the Illinois State Medical Society the following report on the medical care of the

clients of the Chicago Relief Administration for the year 1940:

It is now seven years since this committee assumed the responsibility of advising the relief administration in Cook County relative to medical policies concerning the care of relief clients. In that interim we have met every two weeks with the Director of Medical Relief Service and her assistants to discuss the many problems pertaining to medical care of their clients. The average duration of these meetings has been from three to four hours, frequently longer. The continuity of the personnel of this Committee throughout the duration of this program has greatly contributed to its achievements. Fifty per cent of its members have served on this Committee the entire seven years, the others have been with us over three years, thus giving to each of the members of this Committee an excellent opportunity to become familiar with the many problems that confront us.

The questions that arise in a large program of this type are numerous, varied, frequently tedious, complicated and difficult to adjust. The number of physicians participating in the medical care of the indigent in Chicago has been recently reduced by reason of many of them being called into military service. In our report to you last year we stated that the constantly increasing cost of drugs had threatened to disrupt our program, and that in order to correct it we had invited a carefully selected advisory committee of reliable and renowned pharmacists, who were members of the Chicago Retail Druggists Association and our Committee to study the faults of the old drug program. With their assistance a new drug program was drafted. Standards were defined for all pharmacists participating. Registration of all pharmacists was required. The revised drug procedure became effective May 1, 1941. These changes have been responsible for closer supervision of the entire drug program, as well as periodic inspection of stores and routine review of drug expenditures. It has also been responsible for the simplification of procedures for the patient as well as better accounting controls, particularly as related to routine reports. Through this it has been possible to show promptly and definitely any marked deviations from average, either in cases of possible collusion between physicians and druggists or druggists and patients, or in terms of pointing out physicians whose average cost of drugs per physician visit is markedly above average. The Chicago Relief Administration is just beginning a study of this kind, which study would indicate that our increased cost of drugs is apparently due to a very few physicians whose drug cost per visit is high. Statistics to date demonstrate that of those physicians whose records have been reviewed, 46 per cent of doctors participating average less than fifty cents per physician visit; that about seventy-five per cent of all physicians maintain an average cost of drugs of less than seventy-five cents per physician visit. However, about four per cent of physicians participating show an average cost of drugs per visit exceeding \$1.50. Inasmuch as this

latter group has a large number of calls it greatly contributes to the cost of medical care for these clients and demonstrates that our increased cost of drugs results from the activities of very few doctors as compared with the number participating in the program. It is impossible at this time to quote the official figures on obstetrical care of relief clients. There were approximately 2600 authorizations for delivery service for April 1940 through March, 1941. Of these slightly more than half were for hospital deliveries. There were 272 cases delivered in their homes by private physicians. Patients who are to be delivered at home may choose between the services of a family physician or care by one of the organized home delivery services, viz., the Chicago Maternity Service, Presbyterian Hospital Home Delivery, and the Chicago Lying-in Hospital Home Delivery.

The question of referrals of all ambulatory relief clients for medical care to dispensaries as well as hospital patients to a restricted hospital program are still questions that are under discussion and have not been settled in a satisfactory manner to the members of the Chicago Medical Society.

The number of physicians cooperating in this program is about 2400. Many of these limit their calls to only those clients who may request their services. The total payments to physicians by the Chicago Relief Administration from April 1940 through March 1941 amounted to \$303,304.00. The total payroll from April 1, 1934 through March 1941 is \$3,078,447.45.

In concluding this report we wish to thank Mr. Leo M. Lyons, Administrator of Relief, Miss Edna Nicholson, Director of Medical Relief Service, and assistants, and the many physicians who have participated in this program and made its success possible by their valuable assistance and excellent cooperation.

Respectfully submitted,

Charles H. Phifer, M. D.,
Chairman.

George W. Post, M. D.
Julius H. Hess, M. D.
Fred H. Muller, M. D.
H. P. Saunders, M. D.
James H. Hutton, M. D.

REPORT OF MATERNAL WELFARE COMMITTEE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

There is much work done in every county that is not reported. We are of the opinion that the two-way educational course should be continued. First the refresher course in obstetrics throughout the State has done a lot of good and has aroused much interest in the subject. Secondly, the public meeting for lay groups has created a demand for proper pre-natal care. The women of the educated class will go to the physician for pre-natal care but the women of the low income group will not, unless urged to do so.

Thus the importance of the Permanent Maternal Welfare Committee in every county. We have had a number of large meetings throughout the state on prenatal care with much interest manifested.

The program is changed each year to increase the interest of the Committee and enlarge the scope of its activities.

PROGRAM

1. More emphasis should be placed on adequate prenatal care:
 - (a) Monthly visits up to the seventh month then every two weeks; history; physical examinations; pelvic measurements; urinalysis; blood pressure; Kahn; blood count including red, white and hemoglobin; weight and dietary instructions.
2. We recommend that each county medical society appoint a Maternal and Child Welfare Committee whose duties should consist of:
 - (a) Investigate maternal, fetal and early infant deaths for constructive study in reducing mortality. This investigation to be carried out by the county chairmen and other physicians to be appointed by local society; all information pertaining to this study to be kept in the hands of the medical profession.
 - (b) Have an adequate number of programs on maternal welfare and pediatric subjects before local society and hospital groups to meet the need of that community.
 - (c) Encourage the educational program among the nurses of the community by such means as moving pictures and special lectures.
 - (d) Encourage any improvement of local hospital facilities for better maternal care.
3. We suggest that the Chairman of the Maternal Welfare Committee be designated as the County Chairman and be responsible for the furthering of this program in his respective county. We suggest that he appoint a permanent Maternal Welfare Committee composed of professional and lay groups to further the program of lay education.
4. Encourage post-graduate work and refresher courses among the physicians and promote educational facilities in hospital, county and state in obstetrics and pediatrics.
5. Encourage consultation in all obstetrical complications.

We feel that Illinois has as fine a set-up as any state on maternal welfare activities and the results reported by the Department of Public Health from Springfield justify the conclusion.

We wish to thank the Educational Committee for their splendid co-operation in sending out capable speakers on maternal welfare subjects.

The activities have slowed down some this past year, due to the national program on preparedness and the calling of some of our county chairmen to the service of our country, but the spirit of this educational campaign is present in every section of the State.

Respectfully submitted,

T. B. Williamson, M. D.,
Chairman.

John F. Carey, M. D.,
Secretary.

A. B. Owen, M. D.

Joseph T. O'Neill, M. D.

Worling R. Young, M. D.

R. R. Loar, M. D.

Milton E. Bitter, M. D.

W. C. Scrivner, M. D.,

Maternal Welfare Committee.

F. H. Falls, M. D.,

Advisory Member.

REPORT OF FIFTY YEAR CLUB COMMITTEE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

In January, 1938, the Council of the Illinois State Medical Society, realizing that many physicians in the state, had been practicing medicine for fifty years or more, and wishing to do them just honor, organized the Fifty Year Club. The Club is a phantom organization, without officers, dues, or meetings. Those physicians, whether a member of the Society or not, who have been in the practice of medicine for fifty years or more, and are so recommended by their county society, are eligible to membership.

County societies throughout the state have been holding special meetings to honor these "grand old men of medicine," and the State Society Committee sends a lapel button and a framed certificate of membership for presentation.

We recommend that the county medical society in which the members reside should always sponsor the meeting in which these honors are conferred, unless they combine with some adjoining county medical society.

Since the annual meeting last year in Peoria, the following changes in membership have taken place:

Chicago membership May 1, 194086
New members during past year18

Deaths reported during past year 8

Total Chicago membership, Apr. 30, 1941 96
Downstate membership May 1, 1940131
New members during past year 11

Deaths reported during past year 7

Total Downstate membership, Apr. 30, 1941135

Total membership Apr. 30, 1941231

It has come to my knowledge that there are a number of physicians throughout the state who are entitled to membership in the Fifty Year Club, who have not been so honored. They are men who have dropped out of practice, are not active in Society work, and have been forgotten or neglected by the

officers of the society in the county in which they live. A few others who are actively engaged in the practice of medicine do not desire this public honor for fear it will put them "on the spot" by giving publicity to their advanced age.

Whenever possible interesting highlights in the early days of medicine in Illinois are collected from these Fifty Year Club Members, and the material is filed with other interesting data in the office of the Secretary of the Illinois State Medical Society.

The Fifty Year Club was organized in January, 1938, and the first member admitted to the club was Dr. J. M. McClanahan, Kirkwood, who was graduated from the Chicago Medical School which later became Northwestern University Medical School in 1874. Dr. McClanahan died this year at the age of 91. The last physician to whom a certificate has been issued, was Dr. Charles J. Whalen, late editor of the Illinois Medical Journal.

Respectfully submitted,
Andy Hall, M. D.,
Chairman.
R. P. Peairs, M. D.,
T. B. Knox, M. D.,
Fifty Year Club Committee.

REPORT OF THE COMMITTEE ON ARCHIVES

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

Your Committee on Archives has endeavored during the past year to procure photographs and historical records or news clippings which give information relative to the early practitioners of medicine in Illinois. We have had several notices published in the Illinois Medical Journal calling the functions of the Committee to the attention of the physicians of Illinois and we have succeeded in procuring quite a number of photographs.

Those of you who attended the centennial meeting held last year in Peoria will no doubt remember the fine exhibit of photographs displayed by Dr. Carl E. Black of Jacksonville, a member of this Committee. Dr. Black's presentation before the House of Delegates led to the appointment of this Committee, and we were instructed to call this important matter of collecting photographs of pioneer Illinois physicians to the attention not only of the physicians themselves, but also to relatives of those pioneers who aided materially in making medical history in Illinois.

As you will recall that the fine work edited some years ago by the late Dr. L. H. Zeuch, "History of Medical Practice in Illinois," and published by the Illinois State Medical Society, gave the finest record of medical progress in this state ever written. This work, however, only covered the subject until 1850. It was the intention of the Society to publish a second volume bringing the subject up to date, but owing to many difficulties which were encountered, the second volume has never been published.

It will be much easier for historians in the future to give additional information along this line if the

society can gradually add photographs and biographic sketches of early physicians and a history of their accomplishments to the accumulated data. If each county medical society will endeavor to procure through a Committee on Archives, this information and send it to us, we will be able to further develop this interesting department of our Society.

It is our suggestion that each Society appoint a Committee on Archives, and then see to it that important data, secretaries' books, photographs of physicians, newspaper clippings and the like be made available to the Committee on Archives. Each member of the Society should be advised of the importance of submitting the desired data.

By the merest chance we have secured from time to time material which would have gone into the fire. It certainly does no harm to urge every physician to designate the Illinois State Medical Society as the beneficiary of material desired by the Committee on Archives.

We believe we have made a good start, and if the physicians of Illinois will assist our Committee, we should be able to add valuable data for future generations, and develop archives which will be of inestimable value to this Society in years to come.

Respectfully submitted,
D. D. Monroe, M. D.,
Chairman.
Carl E. Black, M. D.,
P. J. McDermott, M. D.,
Committee on Archives.

REPORT OF SCIENTIFIC EXHIBITS COMMITTEE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

Forty-four applications for space in the Scientific Exhibit Hall have been accepted for the meeting of the Illinois State Medical Society at the Palmer House in Chicago on May 20, 21, 22, 1941. Only two applications were refused because of lack of space. Both of these had been previously shown to the members of the Illinois State Medical Society or to other groups in this State. Of the total number, thirty-nine applications came from members of the State Society living in Chicago and five from members outside this city. Both applications that were refused were from physicians in Chicago.

The exhibits accepted may be roughly classified in the following groups:

Blood	3
Bones	6
Dermatology	2
Diagnosis	2
General and Historical	12
Heart	1
Hormones	2
Obstetrics and Gynecology	1
Pathologic Specimens	2
Surgery	6
Tuberculosis	3
Tumors	4
Total	44

Nineteen exhibitors have requested "view boxes" and six wish to show movies.

The prospects are that this will be the largest Scientific Exhibit ever presented to the State Society.

Respectfully submitted,

Frank J. Jirka, M. D.,
Chairman.

J. P. Simonds, M. D.,
Director.

Committee on Scientific Exhibits.

REPORT OF INTER-PROFESSIONAL RELATIONS COMMITTEE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

During the past year, there have been a number of meetings held in Illinois which were attended by members of the medical, dental, pharmaceutical, and other professional groups with a speaker scheduled to talk on subjects of mutual interest to all of them. In several instances, members of the Bar Association and the Ministerial Association have been present, and have participated in the deliberations.

In accordance with instructions received from the Council, a special committee consisting of the president, secretary and chairman of this committee has met on several occasions with similar committees from the Illinois State Dental Society and Illinois Pharmaceutical Association to discuss the advisability of organizing an Illinois Interprofessional Council. The group has given much time and thought to this proposal, and at the last meeting of the group, a provisional Constitution and By-laws was adopted, subject to the approval of the executive bodies of each of these professional societies.

We had received information concerning the operation of similar Interprofessional Councils in other states and particularly those which have been organized in South Dakota and Iowa. We realize the fact that conditions in Illinois are somewhat different from those of the other states, and it was our earnest desire to develop an organization and state its purposes so that it would in no way interfere with the duties of our respective state organizations and their many committees. The work of legislative and other committees was thoroughly considered, and it was not intended that this program should interfere with individual programs, but to cooperate with them in every way possible.

The name for the organization agreed upon is "Illinois Inter-Professional Council." The purposes, as agreed upon, are:

1. To promote the science and the art of the practice of the aforesaid professions in so far as they affect the progress, the development and the practice of the 'healing arts' in the State of Illinois;
2. To lend support to the program in matters of common interest shared by other health agencies engaged in the control or the eradication of disease that endangers human life;

3. To cooperate with state and government agencies having for their purpose the dissemination of public health information which we believe will improve hygienic standards of living in the State of Illinois.

It has been proposed that the Council shall consist of two representatives from the professions of medicine, dentistry, pharmacy, nursing and hospital personnel, who shall be selected by their respective state organizations for a period of two years. It was proposed that the Council shall hold one annual meeting, and have special meetings when the president or the majority of the Council members deem it advisable.

Members of the Council shall be the members of the respective state societies of the groups composing the Council, and it is proposed that district organizations be developed, elect officers, and hold occasional meetings to which members of the respective state societies will be invited.

The Committee from this Society believes it advisable to have a closer cooperation especially with the dental and pharmaceutical professions, as we have so many mutual problems which require a more thorough cooperation on the part of the respective professional groups.

The Committee has submitted a full report to the Council which has not taken definite action, and we desire to give the same information to this House of Delegates so that the information may be considered first by the Reference Committee, then by the House as a whole.

We are firmly convinced that it is desirable to maintain a closer relationship with the dental society and profession as a whole. We favor more joint meetings, with the scheduling of talks on subjects of interest to both professions, and likewise the ever changing trends in our mutual economic problems.

The Scientific Service Committee of the Illinois State Medical Society has been of much assistance in scheduling speakers for many of these joint meetings and it is our opinion that when additions to the speakers lists are made, it would be well to have a section devoted to the listing of speakers and subjects which will be of particular interest at meetings where members of the medical, dental and pharmaceutical professions meet together.

Your committee will respectfully ask for a careful consideration of this proposed Inter-Professional Council, and will be pleased to receive the comments and suggestions from the House of Delegates. You may be assured that our future actions and cooperation will be in complete accordance with your instructions.

Respectfully submitted,

Harold J. Noyes, M. D.,
Chairman.

P. E. Hopkins, M. D.

E. C. Cook, M. D.

Ralph P. Peairs, M. D.

Inter-Professional Relations Committee.

REPORT OF THE ADVISORY COMMITTEE TO WORKS PROGRESS ADMINISTRATION

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Advisory Committee to the Works Progress Administration is continuing the work that it started last year. The work of the Committee consists in checking the records sent in once a month by the Works Progress Administration, which give a list of injuries received in each community that are cared for on an industrial basis, and the number of cases going to each doctor. This list is rather voluminous, but has been gone over carefully each month.

Not uncommonly, complaints will come in from a district that some one man, through his personal connections with a local foreman of the W. P. A. has been receiving practically all of this industrial work. When this complaint seems verified by the next month's report from that locality, the matter is called to the W. P. A. director's attention, and invariably the next report contains a letter of explanation from the local supervisor with a promise that it will not happen again. In consequence, the work is being quite evenly distributed among those doctors who have expressed a willingness to take care of it. A few abuses have occurred and occasional complaints have been registered. A majority of these have been settled satisfactorily, and while the information of this Committee is based entirely upon the reports sent to it from Chicago, it seems obvious that by checking this work as we are doing, that much worse abuses which could readily occur, have been prevented.

Respectfully submitted,

E. P. Coleman, M. D.,

Chairman.

E. S. Hamilton, M. D.,

H. M. Camp, M. D.,

*Advisory Committee to Works
Progress Administration.*

SUPPLEMENTARY REPORT FOR COOK COUNTY

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

Reporting on the subject of Works Projects Injuries in Cook County, we wish to state that the Advisory Committee of the Chicago Medical Society on the Medical Care of the Indigent and Recipients of Unemployment Relief, became interested in this project about four years ago when many of the clients on relief were transferred to the Works Projects Administration.

At that time we contacted the officials in charge of the Works Projects Administration projects in Chicago and asked them if they would consider referring the injury cases occurring on WPA projects to the group of physicians who were cooperating in rendering medical care to clients of the Chicago Relief Administration. In keeping with this suggestion, we had the Chicago Medical Society list these 2,600 physicians alphabetically according to their respective wards and street addresses. These lists were then

presented to the State Director, Division of Finance, Works Progress Administration of Chicago, with a request that if and when they have accidents occurring on one of these projects they call on one of this group of physicians listed in the community where the accident occurred. In the fall of 1939 a government ruling from Washington made it mandatory that the monthly payroll of all physicians rendering medical care to this group of injuries be submitted monthly to an Advisory Committee of the State Medical Society in the State where the accident occurred so they might review the payroll as to the equitable distribution of these injuries among physicians in the community where these projects are located.

In the interim we have been receiving a copy of the monthly payrolls to physicians for medical services for these injuries from the State Director, Division of Finance, Works Projects Administration. Dr. Hess and your Chairman were appointed to supervise these records in Cook county. Inasmuch as our Advisory Committee of the Chicago Medical Society was primarily interested in this project, we have continued to have the other members of our Committee inspect these records with us. It is our opinion that these payrolls show an equitable distribution of cases.

We submit herewith the payroll for the period from March 1, 1940 to March 31, 1941:

1940	
March	\$ 851.28
April	1,250.25
May	768.35
June	683.30
July	644.40
August	973.80
September	910.00
October	577.00
November	748.05
December	933.40
1941	
January	580.35
February	579.25
March	614.31

\$10,114.24

Respectfully submitted,

Charles H. Phifer, M. D.,
Chairman,

Julius H. Hess, M. D.

James Hutton, M. D.

George W. Post, M. D.

Fred Muller, M. D.

H. P. Saunders, M. D.

*Advisory Committee,
Chicago Medical Society.*

REPORT OF ADVISORY COMMITTEE TO DIVISION OF OLD AGE ASSISTANCE

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

This Committee is one that was created by your Council during the past six months to study the subject of old age assistance in this state. In recent months the State Department of Public Welfare has

requested our aid as an Advisory Committee of the Illinois State Medical Society in helping them develop a medical program which will provide medical care for the old age recipients in the State of Illinois.

In the past two months your Committee has had two meetings with Mr. Fletcher C. Kettle, Superintendent of Old Age Assistance, Mr. Wallace Clark, Assistant Superintendent of Old Age Assistance, and Miss Bierman, Medical Social Consultant, each officially representing the State Department of Public Welfare.

In these conferences many items were thoroughly discussed. Among these were:

1. The present status of the flexibility and operation of the Social Security Act and the Illinois Enabling Act as it pertains to old age assistance programs.

2. The number of old age recipients in the State of Illinois.

3. Medical care, medical needs, available facilities, dentures, appliances, standards and rules governing glasses.

4. County Advisory Committees.

5. The faults and handicaps regarding the present method of medical care for these clients in the State of Illinois.

6. The inability of the physicians to estimate the amount of medical care required on a yearly basis as it has operated in the past.

7. Methods of enabling physicians to collect their fees under the present operation of the Social Security Act.

8. The question of a fee schedule for medical services.

9. A State Dental Advisory Committee.

10. The cost to date of the operation of the old age assistance program in the State of Illinois.

11. Proposed changes that are being discussed throughout the United States in the wording of the National Security Act.

12. Pending legislation in this state in reference to old age assistance.

13. The State Department of Public Welfare is very anxious to cooperate with the Illinois State Medical Society in trying to develop a good program of this type.

14. The problems presented in this state by the old age recipients are greater than those in many others, this by reason of the number of recipients and the amount of money required to meet previous state commitments, thereby making it difficult to obtain adequate finances to operate a state program.

We are attempting to set up certain standards regarding medical care, medical needs and fees for physicians. Questionnaires have been mailed by your Committee to a number of our members throughout

the state who are specializing in diseases of the eye, relative to information concerning diseases of the eye and glasses. It is intended to use this data in setting up our standards in our program.

While the law of the Social Security Act prevents the payment of fees for medical service to any one other than the recipient, the State Department of Public Welfare has promised your Committee that in cases where medical services have been rendered to the recipient, they will notify the recipient when they mail him his pension that the extra money included in his grant for the month is for him to pay his physician for the medical service he has rendered.

In concluding this report your Committee desires to state:

1. That good medical care is one of the necessities of life.

2. That there should be a good state program developed for the medical care of old age recipients.

3. That in such a program the clients should have a free choice of physicians.

4. That the operation of a medical program for old age recipients under the present restriction of the Social Security Act definitely limits any procedure involving the payment of funds for medical care to any one other than the old age recipient.

5. That adequate funds should be made available to defray the cost of a program of this type.

6. That compensation for medical services should be paid by the State Department of Public Welfare direct to the physician rendering such service.

7. That while it cannot be done under the present status of the Social Security Act, we do believe that the fact that the State Department of Public Welfare will notify the client that the extra money in his monthly grant is to pay his physician, will help the physician to collect for his services.

In the near future medical advisory committees will be developed in each county of the state as subcommittees of our committee. We sincerely hope that this is the beginning of a state program for good medical care for these clients; that the laws regulating the funds of the Social Security Act may be adjusted so as to make them available for direct payment of medical care; that this program will benefit the recipients, the State Department of Public Welfare, and the physician rendering medical service to these clients.

Respectfully submitted,

Charles H. Phifer, M. D.,

Chairman.

Everett P. Coleman, M.D.,

James H. Hutton, M. D.,

John R. Neal, M. D.,

Julius H. Hess, M. D.,

Harold M. Camp, M. D.,

Committee on Old Age Assistance.

REPORT OF THE PHYSICAL THERAPY COMMITTEE

Letter from chairman states no meetings were held and no report is to be made.

Andy Hall, M. D.,
Chairman.

J. S. Coulter, M. D.,

D. H. Levinthal, M. D.,

Rudolph Mroz, M. D.,

Milton Schmitt, M. D.,

F. Flinn, M. D.,

Committee on Physical Therapy.

REPORT OF COMMITTEE ON VENEREAL DISEASE CONTROL

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Chairman of this Committee in his 1940 annual report asked that the Committee be discharged and gave his reasons for same. Following this report to the House of Delegates at the last meeting, the Committee on Reports of Council Committees submitted the following report which was adopted:

"Your Committee feels that this Committee should be continued with all its past functions. It is further suggested that this Committee should act in an advisory capacity to all county societies in which such clinics are being established. It is further felt by our Committee that such county societies should have absolute control of such clinics, and that wherever possible uniform rules operating throughout the state should be suggested by your Committee on Syphilis Control."

The Division of Venereal Disease of the State Department of Public Health has not asked the advice or opinion of the Advisory Committee during the past year. A number of free venereal disease clinics have been established in several counties over the protest of organized medicine in these counties, and against the advice of the chairman of the committee. Instead, they have solicited the sponsorship of county boards of supervisors and luncheon clubs, all of which has been in open defiance to the above report. It is the opinion of the chairman of this Committee that there should be a closer cooperation between the Advisory Committee and the Venereal Disease Division of the State Department of Public Health, or the Committee should be discharged.

Respectfully submitted,

I. H. Neece, M. D.,
Chairman.

Committee on Venereal Disease Control.

REPORT OF COMMITTEE ON CANCER CONTROL

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

I have the honor to present to you the annual report of the Committee on Cancer Control of the Illinois State Medical Society for the year 1940-41. Your Committee has directed most of its effort toward an attempt to coordinate cancer control activities throughout the state. Due to interlocking memberships in various committees, this Committee has been able to be constantly informed of other activities along these lines and to participate in practically all work of this kind throughout the state. Most of its efforts have been directed toward the guidance of and assistance to the Women's Field Army of the American Society for the Control of Cancer.

Your chairman was appointed by the Governor as a member of the Advisory Board to the Division of Cancer Control in the Department of Public Health of the State of Illinois, also as a member of the committee selected by the City Club of Chicago to formulate, if possible, a scheme to coordinate cancer control in the Chicago area. Your chairman has also been appointed the Illinois Chairman for the American Society for the Control of Cancer, a position he has not accepted as yet.

Women's Field Army. Considerable progress has been made during the past four months in the reorganization of this extremely useful branch of the American Society for the Control of Cancer. Mrs. Arthur I. Edison of Chicago has been appointed State Commander and is building up an efficient organization to carry on the work. Following permission granted to the Committee, cancer representatives have been selected in all but one councilor district and it is the hope of the Committee to complete this list in a short time. The cancer committee appointed by the Chicago Medical Society is assuming this duty in Cook County. It is the belief of your Committee that the Women's Field Army can be built into an extremely useful organ for cancer control in Illinois and that the State Medical Society as an organization and every individual member of the Society should interest themselves in this organization.

During last summer, exhibits on cancer control were displayed at a number of county fairs and at the state fair at Springfield. Many thousands of pieces of literature have been distributed throughout the state and numerous meetings on cancer control held at various sites. Increasingly more requests are being received to supply speakers on cancer and to arrange for special meetings devoted to cancer. At present, valuable contacts are being made to facilitate cancer education for the lay population. It is the impression of those who have been carrying out this work that more help must be obtained from the medical profession in all communities if the project is to fulfill the mission that is its goal.

City Club Committee: During the winter, the City Club of Chicago appointed a committee, under the chairmanship of Dr. Ludwig Hektoen, consisting of physicians with the exception of one member, to consider ways and means, if found desirable, to coordinate all cancer control projects in the Chicago area. After a number of meetings of this Committee, a call was extended to include duly selected representatives of all organizations in the Chicago area that are interested in cancer control. This meeting was held on April 17, 1941, at the Headquarters of the Institute of Medicine.

Approximately twenty-five organizations were represented by thirty-five delegates. The meeting was presided over by Dr. Ludwig Hektoen. After a presentation of the subject of cancer control and possible methods of approach to a solution by a number of those present, it was decided that a committee of seven be appointed to formulate plans of action and suggest an organization and to report back to the group in due time. It was the unanimous opinion of all those present that some definite plan be adopted for united and coordinated action in the Chicago area on cancer control.

Advisory Board to the Division of Cancer Control, Department of Public Health: Every member of this board is a member of the State Medical Society in good standing. Its activities have been extensive and it forms an essential liaison between the medical profession and the Department of Public Health. Under its direction, a book on cancer is being written to be published by the Department of Public Health and supplied, gratis, to every physician in Illinois. It is the hope of the Committee that this book will provide every physician in Illinois with the essential facts concerning the diagnosis of cancer and guide him on therapeutic measures. Pamphlets have already been issued for lay education. The Department of Public Health has been generous in its assistance to the Women's Field Army in supplying the film "Choose to Live," projectors, and operators.

At a meeting of the Advisory Board held on April 17, 1941, a rough draft of a bill to be introduced into the state legislature was presented by Mr. Hayne, legislator from Ottawa. This bill is to provide for state aid to from six to eight cancer clinics to be established in the down state district, also to provide for personal help for the needy cancer patient. In brief, the bill provides for the setting up of cancer clinics in hospitals to be decided upon by the Department of Public Health and the Advisory Board to the Division of Cancer Control; to give such clinics simple maintenance help in the form of secretaries, social service workers, stationery, and the like. The clinic is to be under the complete jurisdiction of the institution in which it is founded, and it is to be completely under the control and domination of the hospital and its medical staff. The medical service is to be provided for by the institution. In those hospitals where a pathologist is not available, the services of one will be supplied by the state. The bill also spe-

cifies that the needy cancer patient be given \$20 a month by the state and another \$20 a month by the county or municipality. Adequate provisions are being made for the selection of the patient to be provided with such care. It might be stated that this bill has been definitely changed and modified from its original form by one member of the Advisory Board and the Director of the cancer control program of the state. The bill is being taken under advisement by the Board and the Board has been assured that it will not be introduced into the legislature until modified and approved by it. Your chairman now asks for specific instruction relative to the general principles involved in such a bill. It must be obvious that, at the present time, practically all of the cancer control projects are still dominated by representatives of the state society and organized medicine in general.

It is the conviction of your Committee that organized medicine must take a more liberal attitude toward the cancer patient. Both the diagnostic and therapeutic procedures are complicated and at times entirely out of reach, geographically and economically, of many individuals even though in moderate financial circumstances. The incurable patient is a definite economic problem that must be met, if not by organized medicine, then by the State. If organized medicine will meet the State Department of Public Health on equal and mutual terms, some plan may be evolved that will provide adequate care of the cancer patient. The patient must and will be provided for and if organized medicine will not accept the responsibility or refuses to cooperate with the Department of Public Health, or in any wise obstructs a program, the entire matter will be taken out of the hands of organized medicine as was done in Massachusetts. The chairman of your Committee due to his contacts in cancer control, appreciates this situation and offers an ardent plea to the society to take serious cognizance of this acute condition. If we take the lead, we can retain it.

The Committee wishes to express its thanks to Miss McArthur and the Educational Committee for their invaluable assistance during the year; also to the Council for its consent to pertinent requests for increased latitude in certain activities. The chairman wishes to thank personally each member of the Committee for constructive help and assistance in carrying on the activities of the Committee during the year.

Respectfully submitted,

John A. Wolfer, M. D.,

Chairman.

Bowman C. Crowell, M. D.,

Andy Hall, M. D.,

J. J. Moore, M. D.,

Roswell T. Pettit, M. D.,

James P. Simonds, M. D.,

Committee on Cancer Control.

The President: Mrs. A. I. Edison, Chairman of the Women's Field Army and also Vice-President of the Woman's Auxiliary will be given the privilege of the floor to speak on this report.

Mrs. Edison: In requesting the privilege of appearing before the House of Delegates the prime objective was to bring to your attention that the Women's Field Army was being re-organized in Illinois and is seeking the cooperation of the medical profession to the end that the important program of lay education on control of cancer be properly directed. As the new State Commander, it is my earnest desire to fully cooperate with the ethical members of the profession so that quacks will not exploit the public through this organization. In order that the right women be selected in every community, it is imperative that the local county medical societies take an interest in the work of the Women's Field Army and aid the State Commander in making the proper selection.

It was not until my return from the regional convention at Kansas City of the Women's Field Army on February 15th that I started to work for it was there that I learned that Illinois lags far behind the other states in its cancer control work insofar as the Women's Field Army is concerned. In other states the Women's Field Army is recognized as the official group to whom all organizations turn for cancer control programs and it is fully supported by all groups, such as the State Federation of Women's Clubs, P.T.A., American Legion Auxiliaries, etc. One town of 14,000 reported a hundred per cent enlistment of all the men and women in the community. The State Health Department of Kansas furnishes all literature and exhibit material and a motorized truck with films, operator and equipment for full time use of the Women's Field Army. To a new state commander, this was a challenge and I have accepted it. There is no reason why Illinois should not have its place in the sun and it is my opinion, after a careful survey and contact with various outstanding groups and individuals that the Women's Field Army is not understood and that it can be a great power for good if properly directed, for the public is interested in cancer control and when in traveling through the state, women ask such pertinent questions as "Why is there no pathologist in our community and why do we not have a Tumor Clinic in our hospitals and what can the Wom-

en's Field Army do to aid us in getting modern facilities for the treatment and diagnosis of cancer," it seemed imperative that this matter be brought to your attention. The literature being distributed by the Women's Field Army is making the public "cancer-conscious." Unless people understand that our work is under the direction of the medical profession and the Cancer Committee is the Advisory Board, and that they are to go to their family physician for the periodical examinations that are advocated, the interest being aroused will only serve to push people into the hands of the quacks. The correspondence that reaches the office of the Women's Field Army indicates even more than conversations at the various meetings that we must have women handling this work who are well informed and who can turn to the local medical authorities for guidance. In order that the work might be properly directed, I endeavored to secure the assistance of doctors' wives, particularly those who were auxiliary trained and therefore understood the aims of organized medicine and the proper ethical procedure. As all women, they were very interested but, after conferring with their doctor husbands, they refused to assist me. The refusal of doctors' wives to assist in this educational campaign was the chief complaint of other state commanders at the regional convention. This means that I am being forced to entrust this program throughout the state to women who though well intentioned may make mistakes. If the members of the medical society and the members of the auxiliary could be impressed with the importance of the work, much more could be accomplished.

Over one hundred thousand pieces of literature have been distributed during the past sixty days. Counter cards and literature have been placed in all the hospitals in Cook County, all library branches, some Y.M.C.A.'s, all Liggett Drug Stores, Chicago Housing projects and in Marshall Field's, Carson Pirie Scott and Co. and Mandel Bros. waiting rooms. The film, "Choose to Live" is most favorably received everywhere and has been shown in churches, clubs, legion auxiliary, medical auxiliary, etc. For the first time the exhibit of the Women's Field Army was conspicuously displayed at the convention of the Parent-Teachers, convention of the Illinois Federation of Women's Clubs, Tri-State Hospital Assembly and at this Medical Convention. A

copy of the film has been given to the Visual Education Department of the Chicago Board of Education and the film is being shown to the High Schools here and literature of the WFA given to the pupils to take to their parents. Numerous requests have already been received for cancer control programs for the fall and with the support of the doctors of Illinois, the Women's Field Army should be able to carry its banner into every corner of this State to "Fight Cancer with Knowledge." The State Commander of the Women's Field Army will appreciate your suggestions.

REPORT OF COMMITTEE ON CHILD HEALTH PROBLEMS

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The Committee on Child Health Problems has concerned itself with three matters during the past year. First, it has cooperated with the Committee on Mental Health in the development of legislation for the supervision and care of educable mentally handicapped children in Illinois. This important legislation will be acted upon in the very near future. Second, this Committee has had representatives on a coordinating committee called by the State Division, American Academy of Pediatrics, to work out a unified and co-operative State child health program. Third, this Committee has cooperated with the State Department of Health, particularly the Division of Child Welfare under Dr. Grace Wightman, in the development of community interests for cooperative programs involving child health problems, including mental health.

Respectfully submitted,

Bert I. Beverly, M. D.

Chairman.

Robert A. Black, M. D.

Grace Wightman, M. D.

REPORT OF COMMITTEE ON INDUSTRIAL HEALTH

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

Your Committee commends to you for your consideration points 1, 2 and 3, as published in our report of last year, and most specifically we hope that our activities may proceed along certain well defined channels for next year.

1. Investigation. Present requirements in the field of investigation by organized committees in the state and county medical societies refer to inquiries into the details of industrial medical department administration and about the relationships between the physician in industry, the employer, the employee, fellow prac-

tioners and various agencies in the government and in the field of insurance. Physicians specializing in or giving major attention to industrial practice must be known, since it is upon this group that principal dependence must be placed for teaching and clinical investigation and leadership. It will be profitable to know to as large an extent as possible about the facilities at the command of the physicians in industry as a means for suggesting further extension and improvement. Obviously, also, it is desirable to know the exact health problems of industry as the first step toward establishing proper etiologic relationships between occupation and health.

2. The next requirement is correlation. Committees on industrial health in the state medical societies must attempt to coordinate the activities of the many lay and professional organizations which are or should be developing a constructive interest in this field. Since this activity impinges upon professional and public relations, assistance should be enlisted from committees or other agencies in the Society specifically appointed to administer these functions. Of particular interest at the present time is the development of proper relationships with industrial nurses, hygienists and engineers, with the view in mind of establishing their proper sphere of activity in the field and giving them the necessary assistance to promote and establish firmly their professional statuses.

3. Education. The functions of committees on industrial health will always be educational in substance. Every opportunity should be taken to improve the acquaintance of the private practitioner with the means readily available to improve the physical betterment of workers and to guide the application of the science and ethics of medicine into the industrial environment. Opportunities for so doing will occur in connection with medical meetings, seminars, publications and the stimulation of organized teaching in medical and other professional schools.

4. We believe that the county societies, especially in those counties where industries are located, should plan each year to devote one or two of their regular programs to the subject of occupational diseases. This will bring before the men who are actually interested in the treatment, both medical and surgical, of the industrial case, an opportunity for a wider knowledge of this subject.

5. Your Committee proposes to have available for the various societies through the speakers' bureau of the Scientific Service Committee, a list of physicians and surgeons who are willing and able to present this subject before the county societies. We hope that the societies will avail themselves of this facility.

Respectfully submitted,

Philip H. Kreuscher, M. D.,

Chairman.

Frank P. Hammond, M. D.

*H. C. Lyman, M. D.,

Committee on Occupational Diseases.

*Deceased.

REPORT OF COMMITTEE ON MENTAL HYGIENE

Your Committee on Mental Hygiene has been actively engaged in two projects during the year — one having to do with the development of a State program for the educable mentally handicapped children; the other with the information of a State program for mental health.

With the cooperation of all medical societies, nearly all of the well known women's clubs, clergymen, judges, Posts of the American Legion, one Warden, men engaged in police work, we have succeeded in introducing a Bill in the Legislature providing for the care of the mentally handicapped children. This bill is known as the Keane-Bidwell Bill — Senate Bill No. 367. A few days ago this bill was passed in the Senate without one dissenting vote! In the House this bill will be known as the Rategan-Saltiel Bill. Your Committee meets with the Executive Committee of the House tomorrow afternoon.

Representatives of the Mental Hygiene Committee have cooperated with the Child Hygiene Division, State Department of Health, and with the Coordination Committee of State Agencies in developing a State Mental Health Program.

Respectfully submitted,

J. C. Krafft,

Chairman

Bert I. Beverly

Abraham Levinson

Dr. Krafft: One thing more I wish to say. The Committee wishes to thank everyone of you who has helped in this matter. We wish to mention especially our Secretary, Dr. Camp, who gave us thousands and thousands of letterheads and envelopes, Dr. Neal who can do more in Springfield than all of us put together, and all those who have done work. We want to thank Dr. Neal for his kindly efforts. We want to thank Mead-Johnson for a donation of \$100.00. We want to thank Mrs. Edison and all of the well known women's clubs, for without the aid of the lay organizations this bill would probably never have passed. We want to thank the secretaries (eighteen to be exact) of the county societies for speaking on this bill. We want to thank the many judges and particularly Judge Bicek for their interest in the matter. This bill will pass in the next ten days. Remember those who are interested in the bill, if their efforts will have helped to bring back just one handicapped child they will have been worth while.

REPORT OF THE EDITOR

IN MEMORIAM

CHARLES JOSEPH WHALEN, M. D., LL. B.

For many years the report of the Editor has been presented annually in the handbook for members of the House of Delegates and this has invariably been one of the outstanding reports submitted. Written by a master of English and proper grammatical construction, these reports have always been of much interest to members of the House and have received the commendation of the Reference Committee to which the reports were referred.

Charles Joseph Whalen, M. D., LL. B., died in Ravenswood Hospital, Chicago, on Monday, April 7, 1941. He was born in Fitchburg, Wisconsin, in 1868. After receiving his early education in Wisconsin schools, he graduated from Watertown University in 1887. He then entered Rush Medical College, Chicago, and graduated, receiving his degree in Medicine in 1891.

Doctor Whalen decided to remain in Chicago, and while building up a practice, continued his studies at Northwestern University. He received his Bachelor of Law degree from this institution in 1897. He was appointed Health Commissioner of Chicago in 1905, a position which he held for two years, aiding materially in building up the Department, making it one of the outstanding health departments of the country.

Early in his professional life, Doctor Whalen became interested in medical societies, being a regular attendant at their meetings. He was a member of many important committees of the Chicago Medical Society, and the Illinois State Medical Society. He, years ago, was elected president of the Chicago Medical Society which he served most faithfully for one year. At the annual meeting of his State Society, in 1913, he was elected president and served for the fiscal year of 1913-1914.

For nearly twenty-five years, Doctor Whalen was a member of the American Medical Association House of Delegates, and many times was chairman, or a member of important committees, always serving faithfully in any position given to him. About 25 years ago, he was responsible for the introduction and passage of a resolution in the A. M. A. House of Delegates opposing "state medicine" in the United States. He foresaw the danger ahead, as many people then believed, that this country should follow precedents already established in Europe and develop some form of medical care under control of the government.

In June, 1919, Doctor Whalen was elected Editor of the Illinois Medical Journal, which position he occupied until his death. His first number of the Journal was published in August, 1919. When he assumed responsibility for editing the Journal, it had from 40 to 44 pages, little larger than the usual county medical society bulletin. He believed it possible to build up

the Illinois Medical Journal so that it would be one of the leading medical publications of the country. With this idea in mind constantly, he succeeded in developing one of the most outstanding Journals. Every issue of the Journal carried several editorials written by Doctor Whalen, in his inimitable way, discussing fearlessly many of the prevailing problems of the medical profession. Anyone interested in medical economics who desires to follow our economic trends in medicine for the past quarter century, need only read the editorials in the Illinois Medical Journal over this period to determine the chief problems along this line for any year. The editorials written by Doctor Whalen would fill several volumes, and would indeed, be a valuable addition to any physician's library should they be published in this form. Many editorials required several weeks for their preparation, and even during his last illness, while suffering intense pain, he continued his writing until he was unable to hold a pen. Two editorials, written while he was ill, appeared in the May Illinois Medical Journal exactly as they were written.

Doctor Whalen was responsible for the publication of the centennial number of the Illinois Medical Journal which came out before the one hundredth annual meeting last year in Peoria. The following month, June, 1940, the Journal published the "Epitomized Record of the Progress of Medicine During the Last Hundred Years," which will no doubt be found in the offices of many Illinois physicians for years to come. Doctor Whalen worked many months on this article which has been reprinted and copies have been sent to all parts of the nation. Several medical publications have already published it or have permission to do so in the near future.

The members of this House of Delegates will long remember our popular editor, and cherish the many memories of association with him over a period of years.

Three weeks before the death of Doctor Whalen, Doctor Henry G. Ohls, for twenty-eight years the managing editor of the Illinois Medical Journal, passed away. It was a most severe loss to this Society, when the two men responsible for the publication of the Journal, passed away during this short period.

The Illinois Medical Journal will be published regularly each month in the future and for the present its management will be under the supervision of the Publication Committee of the Council. The Council and its Committee will appreciate suggestions from members of the Society relative to the Illinois Medical Journal and methods whereby it may be improved.

REPORT OF WOMAN'S AUXILIARY

TO THE MEMBERS OF THE HOUSE OF DELEGATES:

The progress which has been made this year may be attributed to definite objectives which were stressed at the beginning of the year, namely: Contacts with

lay groups, Benevolence Fund, New Members, Hygeia, National Bulletin, and Medical Preparedness.

There are twenty-one (21) auxiliaries in Illinois. Lake County, Tri-County and Perry County have been added during the last year. In Cook County two (2) new branch auxiliaries have been added, making a total of ten (10) branches in this metropolitan area of Chicago. Close to one hundred seventy (170) new members will have been added to Cook County by May, the end of the auxiliary year. Of these members, sixty-three (63) were added to my own branch, Aux Plaines.

The treasurer's records show ten hundred fifty-six (1056) paid up members. There are five (5) members at large as of March 1st. The number of paid up new members is two hundred twenty-one (221). The total membership to April 1st is eleven hundred twenty-three (1123). By the end of the auxiliary year there will be approximately eleven hundred fifty (1150) members. The fiscal year runs from March 15th to March 15th. The state auxiliary year runs from the end of the annual session to the end of the next annual session.

Outstanding work has been done by the state and county Public Relations Committee. Meetings for the public have been planned throughout the state, with speakers on Socialized Medicine, Cancer Control, Maternal Welfare and many other subjects for the education of the laity. Copies of the National Public Relations Program were sent to the county chairmen "to chart the way and show the intended line of progress for 1940-41." Instructions were given to study the recommendations of the program carefully, then with a knowledge of local needs, under the direction of the advisory committee, to accomplish as much of the program as possible. Letters of greeting and copies of "List of Services Offered to Lay Organizations" from the Educational Committee of the Illinois State Medical Society were sent out. A request for the programs of the several counties and work accomplished to date brought in the following replies:

Cook County Auxiliary with seven of its branches held a joint Public Relations meeting. One thousand (1000) invitations were sent to presidents and health chairmen of federated women's clubs, P. T. A., civic and church groups, etc. A tour of the A. M. A. building followed.

Madison County Auxiliary held a large Public Relations Tea.

Peoria County Auxiliary contacted the Civic Federation of Women's Clubs, representing one hundred fifty (150) organizations.

Vermilion County Auxiliary had a large Public Relations Program in the form of an evening joint meeting with the American Association of University Women.

Will-Grundy County Auxiliary arranged for a Laity Day Tea and Program and planned programs

for the Woman's Club, Jewish Women's Club, Catholic Women's League and the Rotary Club.

St. Clair County Auxiliary held a large Public Relations Day on April 4.

Henry County Auxiliary reported a very successful Laity Tea on Feb. 11.

Our state program has followed the general plan laid down by our national program chairman. Cancer, Maternal Welfare, Mental Hygiene were the topics stressed particularly by our advisory committee.

Hygeia subscriptions have been increased this year through the earnest efforts of our chairman, and I am happy to report that Illinois has won many honors. The first prize of forty dollars (\$40.00) was awarded to the state, with a total of 1,358½ subscriptions. Vermilion County was awarded first prize of forty dollars (\$40.00) in group 3, and the second prize of twenty-five dollars (\$25.00) in group 4 went to Cook County. Honorable mention was given to Sangamon and Will-Grundy Counties.

The Legislative Committee has tried to carry out the wishes of the Medical Society in regard to Medical Legislation.

To date we have forty-four (44) subscriptions to the Bulletin.

The Benevolence Fund for indigent doctors and their widows, which is a new project this year, has proved a stimulus for membership. Because of the fact that it is a new project, and unknown to the county auxiliaries, it was necessary to explain the reasons for this fund, and the benefits which will accrue from it. Therefore the month of April was designated as "Benevolence Month." All counties were urged to contribute to this fund by the end of April, 1941. Cookie sales, bridge-teas, dancing parties, and assessments of one dollar (\$1.00) were the means used to raise this money. I am happy to report that we have a substantial sum to contribute to the state fund on benevolence. I wish to state that most of the counties have cooperated, for which I wish to extend my sincere appreciation. A few of the counties have not responded as yet, due to the fact that their reports are not complete. Perry, our newest county, organized March 6th, will not respond this year. The following are the counties which have notified me of their contributions to the Benevolence Fund:

County	Amount
Adams	\$31.00
Bureau	17.00
Coles-Cumberland not heard from	
Cook	538.00
Branches	
Aux Plaines	\$150.00
Calumet	13.00
Englewood	123.00
Irving Park	23.00
Jackson Park	42.00
North Shore	62.00
North Side	65.00
South Chicago	39.00
Stockyard	21.00
	<hr/> \$538.00

Douglas not heard from.	
Kane	35.00
Knox	26.00
Lake in May report	
Livingston	10.00
Logan	5.00
Marion-Clinton not heard from.	
Rock Island	25.00
St. Clair	20.00
Sangamon	100.00
Vermilion	38.00
Will-Grundy	51.00
Madison not heard from.	
Henry in May report.	
Peoria	100.00
Tri-County	10.00
Perry, no report this year.	

TOTAL \$1006.00

In regard to medical preparedness, the auxiliary members were urged to exhort their husbands to complete the medical questionnaire.

Our state exhibit chairman is working towards an exhibit to be sent to Cleveland in June and for our state meeting in Chicago in May.

As state president, I attended the national convention in June in New York, and it was my privilege to assist in entertaining the national board in Chicago in November. I have visited thirteen (13) county auxiliaries and nine (9) branch meetings in Cook County, making a total of twenty-two (22). I have written articles for the Illinois Medical Journal, and an article for the Bulletin. Thirty-five (35) reports on the National Auxiliary, fifty (50) packages, six hundred sixty (660) letters were mailed.

Our fall board meeting was held in Chicago in November. Thirty-two (32) members were present, and the interest and enthusiasm displayed were most gratifying. We were honored in having our National President, Mrs. Holcombe, as our guest. She addressed the board during luncheon. The second board meeting was held in March.

The third board meeting will be the pre-convention board meeting, and will be held on May 20th.

No financial assistance has been given the auxiliary this year by the Council. Three invitations to visit counties were refused by this chairman, due to the fact that the budget would not permit.

In conclusion may I thank the president, Dr. J. S. Templeton, and the Advisory Committee, and Miss Jean McArthur, for the cooperation afforded me throughout the year.

I wish to express my gratitude to Dr. Frank Maple, to Dr. H. Prather Saunders, and to Mrs. Esther Fraser, for their generous help in preparing for our annual convention in Chicago.

Respectfully submitted,

Marion C. Dooley,

President Woman's Auxiliary.

The President: At this time I wish to introduce Dr. Edward H. Skinner of Kansas City,

Member of the Management Committee of the National Physicians Committee, who will be allowed ten minutes.

Dr. Skinner: I want to tell you about the National Physicians Committee. I am coming before you as a fellow practitioner of medicine, one who believes in a program for the medical profession that carries information to all the people upon the platforms of medicine and upon that of the American Medical Association. The National Physicians Committee does have a hard task. It was organized at a time when it was necessary to provide some means of fortifying the position of the American Medical Association, of which we are all members, in the eyes of the public. This National Physicians Committee was organized by men who occupied important positions in medicine, and they have discharged their duties in a manner that is acceptable. This Committee has sent out several different publications to physicians, spacing at too long intervals probably the announcements of the program of the Committee. There has been some criticism of the manner of the expenditure of some of the money. As a member of the Board of Trustees I will gladly share with you the criticism of some of the expenditures, but I have been marvelously surprised at the manner in which these things reverberate to the credit of the medical profession. We were terribly embarrassed last year when we used a double spread in the middle of the Saturday Evening Post. It was expensive, it staggered me. I am practicing medicine just as you, and I try to earn a living by laboring in my profession. We found that a publication suitable to one part of the country is not always adapted to another. It is the same proposition as you and I have in devising better means of medical care. Local problems are different. That is why you and I insist that there is no one method of socialization of medicine which will work throughout the United States. Here is a large farm area, here is a large industrial center, the problems are different. Each county society making up the state society must work out its own program. This National Physicians Committee has had a difficult job trying to devise means of publicity which would be useful in instilling confidence in the medical profession. We have been under fire even by government indictment.

All of these things do not seem nearly as

terrible when the thing has passed by as it did when it rose before us. We are confident that many of the things that have been done have been useful in shaping themselves so we have not felt any injury so keenly. This original spread in the Saturday Evening Post which cost a large amount of money was copied by papers all the way from Charlottesville, Virginia to Portland, Oregon. We have received large contributions from pharmaceutical houses to back up this program. When this was published throughout the country in some 300 metropolitan dailies we felt that while it cost several thousand dollars the results far outweighed the cost.

Now another very interesting thing that we are doing is that there are 13,000 country newspapers in the United States. There is an editorial service that goes to these 13,000 country newspapers from Hoefer and Sons of Portland. We started this service. I have here just one group of clippings from country newspapers. Just today I received a page from a medical journal from North Carolina in which the editor had copied from some small country newspaper an article on the position of American medicine. The New York Medical Weekly copied an editorial which was published in a LaPeer Michigan paper. That is one of the things that has been built up by this editorial service.

There are many other means that will be used, but we require finances. I feel confident that all doctors should support this program. I would hope that you as delegates of the Illinois State Medical Society would agree with a few of us who are responsible for this program of the National Physicians' Committee. This program must be supported by us. We cannot expect the pharmaceutical houses to write out large sums for those who are not willing to help themselves. You have all received the recent letter, and every county medical society secretary received a detailed program from Houston, Texas that covered the entire situation. When you go home just build a little fire under the local secretary to see that he helps the local committee so we can get some support. It is an honest program, it is a long time program, but it is a program that must be done. We have outlined to you the reasons it cannot be done by the A.M.A. itself but must be done by those aligned with the A.M.A.

I thank you for listening so intently. I certainly hope that when you go home you will insist upon your secretary doing as I suggested. I do not know whether it will be necessary for this House of Delegates to pass a resolution or some supporting motion for this project, but I guarantee that those who are attempting to do this work will greatly appreciate what you have done. I have not told the whole story but I will not bore you. I hope my sincerity is sufficient to guarantee the program to you.

The Secretary: We have had called to our attention the illness of two prominent members of the Society. Dr. Skaggs, a Past President, recently had a cerebral accident. Dr. Clifford U. Collins of Peoria has been seriously ill. Your Secretary would like to have the authorization from the House of Delegates to send the proper telegrams.

Dr. Andy Hall, Mt. Vernon: I so move. (Motion seconded by Dr. Mather Pfeifferberger, Alton, and carried).

The President: There is no unfinished business, so we come to new business, the first item of which is the introduction of resolutions.

Dr. L. E. Day, Chicago: I wish to offer a resolution from the Council memorializing Dr. Henry G. Horstman.

1. DR. HENRY G. HORSTMAN

Whereas, in the furtherance of His all wise plan, our Creator has removed from our midst our friend and colleague, Henry G. Horstman, and

Whereas, for many years Dr. Horstman had been very active in the affairs of organized medicine in his own county and the surrounding community, and

Whereas, Dr. Horstman served his fellow physicians in the Tenth Councilor District efficiently and wisely as Councilor,

Therefore be it resolved, that the House of Delegates in session during the 1941 annual meeting of the Illinois State Medical Society pay this humble tribute to the memory of Dr. Horstman as an outstanding citizen of his community, as a highly capable physician and surgeon, and as a Councilor for the Illinois State Medical Society.

And be it further resolved, that this resolu-

tion in respect to his memory be spread upon the minutes of the transactions of this House of Delegates, and a copy be sent to the family of the late Henry G. Horstman.

Dr. Andy Hall: Mt. Vernon: Some two years ago I called the attention of the House of Delegates to the fact that Illinois was one of the few states that was fast becoming the dumping ground of foreign physicians, druggists and dentists. One year ago I called your attention to the same thing without result. Happily a change of administration and the appointment of a man from my town, the Honorable Frank G. Thompson, Director of Registration and Education, has been helpful. He and the Board of Medical Examiners have promulgated rules that will solve that problem to some extent. Following the election last fall, I took the matter up with Honorable S. O. Dale, and bills were introduced making citizenship a requisite to license in the various trades and professions, and citizenship as a requisite to being placed on the State payroll. These bills passed the lower House of the Legislature with a vote of 107 for and 6 against. It is now over in the Senate and we hope that you men who have any influence with your Senators will see that it passes that body.

We have another problem in Illinois to which I wish to call your attention, and I want to read the following resolution:

2. UNAPPROVED MEDICAL SCHOOLS

Whereas, during the past year Illinois licensed 48 graduates from unapproved medical schools, and during the past six years has licensed 392 graduates from unapproved medical schools, which, with the exception of Massachusetts, is more than the number from unapproved medical schools licensed in all the other states in the Union, and,

Whereas, graduates from unapproved medical schools are refused licensure in practically all our surrounding states, and in most of the other states in the Union, and,

Whereas, graduates from unapproved medical schools are not acceptable for commissions in the United States Army, Navy, or the United States Public Health Service, and,

Whereas, many young physicians now living in Illinois, who are graduates from unapproved

medical schools, find themselves unable to secure commissions in the Army, Navy, or U. S. Public Health Service, and are compelled to register as ordinary draftees, therefore be it

Resolved, that this embarrassing situation be called to the attention of the faculty of any unapproved medical school now operating in Illinois with the recommendation that they immediately make such changes in their teaching staff, curricula and equipment as is necessary to secure recognition as a class A school, and be it further

Resolved, that if it is not possible to secure these changes, they should close the doors of their institutions, and be it further

Resolved, that in the event this is not done, we recommend that any physician who continues on the staff of such an institution be subjected to expulsion from the Illinois State Medical Society, and that the Director of Registration and Education, and the Board of Medical Examiners be directed to withdraw further recognition of graduates from such medical schools.

Dr. G. H. Edwards, Pickneyville: I wish to introduce the following resolution:

3. DIPLOMATIC IMMUNITY

Whereas, we, the physicians of Illinois, recognize the urgent need of more vigilant preservation of our American ideals and ways of living, and since we have permitted the entrance into our country of individuals whose every effort is and has been to undermine and overthrow our institutions, and

Whereas, we are convinced that the Department of State and other governmental agencies, in following a policy of fair play and tolerance regarding the activities of foreign diplomats and their attaches in our land, have been imposed upon by unscrupulous individuals who have presumed to cause the courtesies of "diplomatic immunity" to be extended to spies, saboteurs, and other subversive elements which have become the springboard in America for the infiltration of foreign ideologies, and

Whereas, it is an established fact that the number of individuals to whom "diplomatic immunity" has been extended has, without apparent cause, been unduly increased beyond all reason within the past few months, and

Whereas, the abuse of these courtesies of "diplomatic immunity" is a current effrontery to the

intelligence of the American people and government, therefore be it

Resolved, that the physicians of Illinois go on record as favoring:

1. A hearty commendation and vote of confidence to the various state and federal governmental agencies including the Federal Bureau of Investigation and the Dies Committee, and to all newspaper commentators, radio commentators, and other wide-awake Americans who have been devoting their energies towards combating those subversive influences.

2. All possible support to further efforts toward eliminating those subversive elements which are contrary to our American way of living; to wit, the abuse of our freedom of speech and assemblage, sabotage, espionage, and all non-American "isms."

3. Definite and immediate steps for the reasonable control of unscrupulous individuals who attempt to abuse the courtesies of "diplomatic immunity."

4. The adoption of this or a similar resolution by the Illinois State Medical Society.

Dr. W. W. Fullerton, Steeleville: I wish to introduce the following resolution:

4. ESTABLISHMENT OF VENEREAL CLINICS

Whereas, we the members of the Randolph County Medical Society, believe that the Illinois State Department of Public Health has, without consideration of our opinions, established a venereal clinic in Sparta, Illinois, the proposition which this Society has twice rejected.

Therefore be it resolved, that we the members of the House of Delegates of the Illinois State Medical Society cause to be delivered to the Illinois State Department of Public Health a copy of these resolutions, and

Be it resolved, that this House of Delegates objects and protests the action of the Illinois State Department of Public Health in their policy of establishing venereal clinics or any other clinic within a county where the component county medical organization objects to the establishment of such a clinic, as was established in Randolph County at Sparta, Illinois.

(Signed)

J. Omer Hoffman, President
W. W. Fullerton, Secretary
Randolph County
Medical Society.

Dr. G. Henry Mundt, Chicago: I was asked by the Eye, Ear, Nose and Throat Section to present the following resolution, relative to a change in the by-laws. It should go, therefore, to the Committee on Revision of the Constitution and By-Laws rather than to the Resolutions Committee.

5. PRESENTATION OF PAPERS AT THE STATE MEETING

Whereas, the present by-laws of our State Medical Society state that "all papers read before the Society or any of its Sections shall become the property of the Society. Each paper shall be deposited with the Secretary of the Section when read and the presentation of a paper to the Illinois State Medical Society shall be considered tantamount to the assurance on the part of the writer that such paper has not already appeared and will not appear in medical print before it has been published in the Illinois Medical Journal," and

Whereas, our Section is very anxious constantly to improve the quality of presentations so as to increase the interest and attendance from all parts of the State, and

Whereas, we find that members of our Section are loathe to make their original contributions before our Section owing to the present restrictions, and

Whereas, the American Medical Association allows the publication in the various specialty journals of papers presented before the Eye, Ear, Nose and Throat Sections at its annual meetings, therefore be it.

Resolved, that the Eye, Ear, Nose and Throat Section of the Illinois State Medical Society respectfully requests the House of Delegates to change the by-laws of our State organization so as to extend the same privilege.

The President: If there are other resolutions they can be presented in the interim to the Committee on Resolutions.

The Secretary: A telegram of felicitation was received from the Michigan State Medical

Society. The Secretary, Dr. L. Fernald Foster of Bay City, had expected to attend our meeting but was unable to be here.

Dr. Mather Pfeifferberger, Alton: I move that we adjourn until nine o'clock Thursday morning. (Motion seconded by Dr. C. H. Phifer, Chicago, and carried).

The House adjourned at 5:45 P.M.

SECOND SESSION

Thursday Morning, May 22, 1941

The Thursday morning session was called to order at 9:45 A.M. by the President, Dr. J. S. Templeton, Pickneyville.

The President: The first order of business is the report of the Credentials Committee.

Dr. C. E. Wilkinson, Danville: The Credentials Committee has certified 55 delegates from downstate, 47 from the Chicago Medical Society, and 12 members of the Council, a total of 114. I move you, Mr. President, that this constitute the voting body for this meeting. (Motion seconded by Dr. L. E. Day, Chicago, and carried).

The President: The next order of business is the roll call by the Secretary.

Dr. C. E. Wilkinson, Danville: I move that the signed slips constitute the official roll call for this meeting. (Motion seconded by Dr. E. P. Coleman, Canton, and carried).

The President: The next order of business is the reading of the minutes of the previous meeting.

(The Secretary read the minutes).

Dr. L. E. Day, Chicago: I move that the minutes be approved as read. (Motion seconded by Dr. Andy Hall, Mt. Vernon, and carried).

The Secretary: I have received a telegram of felicitations and good wishes from the Iowa State Medical Society.

The President: The next order of business is the election of officers. Nominations are in order for President-Elect.

Dr. E. S. Hamilton, Kankakee: In the absence of the delegate from Rockford who nominated him, it is my pleasure to nominate Dr. E. H. Weld of Rockford as President-Elect. (Seconded by Dr. T. B. Williamson, Mt. Vernon).

Dr. L. E. Day, Chicago: I move that the nominations be closed and that the Secretary cast the affirmative ballot for Dr. Weld. (Mo-

tion seconded by Dr. T. B. Williamson, Mt. Vernon, and carried).

The ballot was cast and the President declared Dr. Weld elected.

The President: I will ask Dr. Weld to step to the front for a half minute.

Nominations are in order for first Vice-President.

Dr. P. R. Blodgett, Chicago Heights: I wish to nominate Dr. H. P. Saunders of Chicago.

Dr. John S. Nagel, Chicago: I wish to second the nomination and to move that the Secretary cast the affirmative ballot for Dr. Saunders. (Motion seconded by Dr. E. E. Davis, Avon, and carried).

The ballot was cast and the President declared Dr. Saunders elected.

The President: Nominations are in order for second Vice-President.

Dr. P. R. Blodgett, Chicago Heights: I wish to nominate Dr. Fred Muller of Chicago.

Dr. Andy Hall, Mt. Vernon: I second the nomination and move that the nominations be closed and that the Secretary be instructed to cast the affirmative ballot for Dr. Muller. (Motion seconded by Dr. E. E. Davis, Avon, and carried).

The ballot was cast and the President declared Dr. Muller elected.

The President: Nominations are in order for Secretary.

Dr. W. E. Kittler, Rochelle: I wish to nominate Dr. Harold M. Camp of Monmouth to succeed himself.

Dr. E. P. Coleman, Canton: I second the nomination and move that the nominations be closed and the President instructed to cast the affirmative ballot for Dr. Camp. (Motion seconded by Dr. E. E. Davis, Avon, and carried).

The President cast the ballot and declared Dr. Camp elected.

The President: The nomination for Treasurer will be postponed until after the report of the Committee on Revision of the Constitution and By-Laws. Nominations are now in order for Councilors, first for the First District.

Dr. K. M. Manougian, Elgin: I wish to nominate Dr. Lawrence J. Hughes of Elgin as Councilor for the First District.

Dr. E. H. Weld, Rockford: I second the nomination, and also move that the nominations

be closed and the Secretary instructed to cast the affirmative ballot for Dr. Hughes. (Motion seconded by Dr. E. E. Davis, Avon, and carried).

The ballot was cast and the President declared Dr. Hughes elected.

The President: Nominations are in order for Councilor for the Second District.

Dr. J. H. Edgecomb, Ottawa: I wish to nominate Dr. E. C. Cook, Mendota, to succeed himself.

Dr. C. E. Wilkinson, Danville: I wish to second the nomination and to move that the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Cook. (Motion seconded by Dr. C. H. Hulick, Shelbyville, and carried).

The ballot was cast and the President declared Dr. Cook elected.

The President: Nominations are in order for Councilor for the Third District.

Dr. H. P. Saunders, Chicago: I take pleasure in nominating Dr. P. E. Hopkins to succeed himself.

Dr. J. S. Nagel, Chicago: I second the nominations and also move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Hopkins. (Motion seconded by Dr. T. B. Knox, Quincy, and carried).

The ballot was cast and the President declared Dr. Hopkins elected.

The President: Nominations are in order for Councilor of the Tenth District for one year to fill the unexpired term of Dr. Horstman, deceased.

Dr. W. W. Fullerton, Steeleville: I wish to nominate Dr. G. C. Otrich of Belleville.

Dr. T. B. Williamson, Mt. Vernon: I second the nomination and at the same time move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Otrich. (Motion seconded by Dr. P. J. McDermott, Kewanee, and carried).

The ballot was cast and the President declared Dr. Otrich elected.

The President: Nominations are in order for Councilor of the Eleventh District.

Dr. G. H. Ayling, Kankakee: I wish to nominate Dr. E. S. Hamilton, Kankakee, to succeed himself.

Dr. T. B. Williamson, Mt. Vernon: I second

the nomination and also move that the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Hamilton. (Motion seconded by Dr. J. W. Long, Robinson, and carried).

The ballot was cast and the President declared Dr. Hamilton elected.

The President: Nominations are in order for election of Delegates to the American Medical Association, from the Chicago Medical Society, to succeed Charles B. Reed for two years, and to succeed Charles J. Whalen for one year.

Dr. H. K. Scatcliff, Chicago: I wish to nominate Dr. Robert H. Hayes for two years to succeed Dr. Reed. (Seconded by Dr. L. E. Day, Chicago).

Dr. H. P. Saunders, Chicago: I wish to nominate Dr. Charles H. Phifer to succeed Dr. Whalen for one year. (Seconded by Dr. L. E. Day).

Dr. Oscar Hawkinson, Chicago: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Drs. Hayes and Phifer. (Motion seconded by Dr. V. A. McClanahan, Aledo, and carried).

The ballot was cast and the President declared Drs. Hayes and Phifer elected.

The President: Nominations are in order for Delegates from downstate.

Dr. S. E. Munson, Springfield: I wish to nominate Dr. L. O. Frech, Decatur. (Seconded by Dr. C. E. Wilkinson).

Dr. T. B. Knox, Quincy: I wish to nominate Dr. W. E. Kittler, Rochelle. (Seconded by Dr. Mather Pfeifferberger, Alton).

Dr. Harlan English, Danville: I wish to nominate Dr. C. E. Wilkinson, Danville. (Seconded by Dr. T. B. Knox, Quincy).

Dr. E. H. Weld, Rockford: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Drs. Frech, Kittler and Wilkinson. (Motion seconded by Dr. E. P. Coleman, Canton, and carried).

The ballot was cast and the President declared Drs. Frech, Kittler and Wilkinson elected.

The President: Nominations are in order for the election of Alternate-Delegates to the American Medical Association, first from the Chicago Medical Society.

Dr. P. R. Blodgett, Chicago Heights: I wish to nominate Dr. Frank L. Brown, to succeed himself.

Dr. J. S. Nagel, Chicago: I second the nomination and also move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Brown. (Motion seconded by Dr. E. P. Coleman, Canton, and carried).

The President: Nominations for Alternate-Delegates from downstate, for two years.

Dr. E. P. Coleman, Canton: I wish to nominate Dr. Bernard Klein, Joliet. (Seconded by Dr. P. J. McDermott, Kewanee).

Dr. Andy Hall, Mt. Vernon: I wish to nominate Dr. C. O. Lane, West Frankfort. (Seconded by Dr. T. B. Knox, Quincy).

Dr. S. E. Munson, Springfield: I wish to nominate Dr. Harry Otten, Springfield. (Seconded by Dr. L. O. Frech, Decatur).

Dr. T. B. Williamson, Mt. Vernon: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Drs. Klein, Lane and Otten. (Motion seconded by Dr. P. J. McDermott, Kewanee, and carried).

The ballot was cast and the President declared Drs. Klein, Lane and Otten elected.

The President: Nominations are in order for the election of Standing Committees.

(Nominations were presented in each case, the Secretary instructed to cast the affirmative ballot for the following members of the Standing Committees, and they were declared elected by the President).

Public Relations: W. S. Bougher, Chicago. Fred H. Muller, Chicago, and H. W. Woodruff, Joliet.

Medical Legislation: Robert H. Hayes, Chicago, Mather Pfeifferberger, Alton, and Harry Otten, Springfield.

Medico-Legal (For three years): J. R. Balinger, Chicago, and C. U. Collins, Peoria.

Medical Education and Hospitals: (One to be elected for one year, one for two, and one for three years): J. P. Simonds, Chicago, H. O. Munson, Rushville, and W. R. Marshall, Clinton.

The President: Nominations are in order for members of the Committee on Relations to Public Health Administration.

Dr. L. E. Day, Chicago: I move that the nominations for this Committee be dispensed with until after the Committee on Revision of

the Constitution and By-Laws has reported. This Committee may be abolished. (Motion seconded by Dr. W. E. Kittler, Rochelle, and carried).

The President: The next order of business is fixing of the per capita tax for 1942; it is now \$8.00.

Dr. L. E. Day, Chicago: As was stated in the supplementary report of the Chairman of the Council at the first session of the House of Delegates, even though our expenses are rather greatly increased by the out-payments of the Benevolence Fund and we will lose a good deal of money by the remission of dues to men in the active service of the Army and Navy, the Council felt that the dues should not be increased. I, therefore, move that the per capita tax remain at \$8.00. (Motion seconded by Dr. L. O. Frech, Decatur).

Dr. John S. Nagel, Chicago: I wish to second the motion. The House of Delegates should remember that one dollar of this tax will be turned over to the Benevolence Fund. (Motion carried).

The President: The next order of business is the selection of a meeting place for 1942.

Dr. C. B. Stuart, Springfield: I wish to invite the Society to come to Springfield. The meeting at Springfield has always been satisfactory to the men in Springfield.

Dr. C. E. Wilkinson, Danville: I move that we accept the invitation to meet in Springfield. (Motion seconded by Dr. L. O. Frech, Decatur, and carried).

Dr. E. S. Hamilton, Kankakee: Should we not elect a member of the Benevolence Committee?

The Secretary: Last year the Benevolence Committee was elected by the House of Delegates. After the first year each elected member would be eligible for a three year term. Dr. C. H. Hulick of Shelbyville was elected for the short term, so his term expires this year.

Dr. John S. Nagel, Chicago: I would like to nominate Dr. Hulick to succeed himself. It is important that the Committee be kept intact for a time until we can study the problem. (Motion seconded by Dr. E. H. Weld, Rockford).

Dr. E. H. Weld, Rockford: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr.

Hulick. (Motion seconded by Dr. L. E. Day, Chicago, and carried).

The ballot was cast and the President declared Dr. Hulick elected.

The President: The next order of business is the reports of Reference Committees.

COMMITTEE ON REPORTS OF OFFICERS

Presented by Dr. G. Henry Mundt, Chicago.

Report of the President: Your Committee has read the report of President Templeton and highly approves its contents. The evidence of his thorough grasp of the problems of the profession is what one would expect from his general reputation.

(Dr. Mundt: I move the acceptance of this portion of the report. (Motion seconded by Dr. L. E. Day, Chicago and carried).

Report of the President-Elect: The report of President-Elect Phifer shows unusual understanding of that most complicated of problems, the ever increasing medical difficulty of administering the Social Security Act.

In a supplementary report Dr. Phifer advocated the establishment of a central committee with sub-committees (medical advisory) in each county to handle all problems concerning medical care. Your Committee approves the plan and advocates that it be established by the Council.

(Dr. Mundt: I move the acceptance of that portion of the report. Motion seconded by Dr. J. H. Hutton, Chicago and carried).

Report of the Secretary: The report of the Secretary again demonstrates the large amount of work done in his office and by him. Your Committee deplores the work necessitated by failure of so many medical men to return the questionnaires sent by the Committee on Medical Preparedness. We sanction the activity of our Secretary in the many problems involved in the Medical Preparedness of our country.

An increase in membership is noted with satisfaction.

We approve the suggestion of our Secretary that the Committee on Archives be made a permanent committee.

We see evidence of the prodigious work of our Secretary in arranging the meeting which is drawing to a close.

The unusually large number of prominent members who have died during the last year

saddens the whole Committee.

We are certain of the ability of our Secretary to keep abreast of the ever present changes necessary in accounting.

(Dr. Mundt: I move the acceptance of this portion of the report. Motion seconded by Dr. L. E. Day, Chicago, and carried).

Report of the Chairman of the Council: He again refers to the dreary toll of the Grim Reaper.

The Chairman again refers to the failure of many medical men to fill out questionnaires; this failure we deplore.

The Chairman of the Council again in a supplementary report advocated the establishment of the central and sub-committee plan to handle all problems concerning medical care.

Your Committee heartily approves the Chairman's comment on the Educational and Post-Graduate Committees. However, we wonder whether obstetrical programs are not too frequent.

We concur in the recommendation of the Council in nominating Robert H. Hayes, Mather Pfeifferberger and Harry Otten on the Legislative Committee.

Your Committee approves the action of omitting the Hall of Health.

(Dr. Mundt: I move the approval of this portion of the report. (Motion seconded by Dr. T. B. Knox, Quincy, and carried).

Respectfully submitted,

G. Henry Mundt, Chairman
C. W. Carter
H. A. Beam

Dr. Mundt: I move the acceptance of the report as a whole. (Motion seconded by Dr. L. E. Day, Chicago, and carried).

REPORT OF COMMITTEE ON COUNCILORS' REPORTS

Presented by Dr. R. L. Reynolds, Maywood

Your Committee feels that the report of the Chairman of the Council is a most comprehensive one and should be accorded great praise.

Fully, and in detail he has reviewed the work of the Council, accentuating the important points and wasting no time with trivialities. We feel he should be commended highly and that the report should be read by every member of the Society.

First District: This report, while full of truisms, might well be that for any Councilor Dis-

trict. The remarks about members working on draft boards appear in this and many other reports and will be mentioned later in this review.

Second, Sixth and Eleventh Districts: These reports are very similar in tenor and may perhaps be commendable because of their brevity, but as summaries of the activities of these Districts, all of them are a bit sketchy.

In the case of the Eleventh District Councilor, it is a well recognized fact that he is so swamped with other duties for organized medicine that he has no time for idle persiflage.

Third District: The outstanding feature of this good report is the telling of what the Chicago Society is really accomplishing in the care of the indigent. It is a regrettable fact that our other counties are much less successful. It is to be hoped that other units soon may be able to profit by this example.

Fourth District: Notable in this report are two things, namely that two of the component societies have Public Welfare Committees, and that special work is being done in ferretting out incipient tuberculosis. The latter is fine in every way, the former is good if the lay membership of the communities does not get out of hand.

Fifth District: It is interesting to note that McLean County is still struggling against contract practice and has taken drastic action to abolish it. It is to be hoped that the State Society be kept acquainted with the success or failure of this effort.

Seventh District: The activity of the Committee for the Control of Cancer is worthy of comment and commendation.

Also we note that this is the first of the districts to mention N.Y.A. examinations, more about which will appear later in this review.

Eighth District: Several matters of general interest are mentioned here as in many of the other reports, and will be discussed very briefly at the end of this rehearsal.

Ninth District: Certainly the remarks of the Councilor from this District are not humdrum or vague. Whether or not the manner of speaking should be commended, your Committee is in doubt. We believe definitely that to improve the school which is mentioned, would be much better than to close it, with the inevitable result that another similar in type would soon appear. We do feel that, regardless of one's beliefs, it is

not wise to print drastic criticisms of our government, especially in times such as the present.

Tenth District: Your Committee feels it only fair to praise this report as being especially well done. When it is remembered that this Councilor was thrust into this work suddenly and without experience, his results are all the more commendable.

Also it should be noted that here only the matter of venereal clinics is mentioned. There is much to be said about them but we will content ourselves with classing such state medicine with others to be mentioned later in this report.

Councilors-at-large: Dr. Munson's remarks are so similar to many preceding his report than any comment will be included with those to come at the end of this review.

Dr. Hutton's report and supplementary report with detailed information about the N.Y.A. examinations and the need thereof, are most timely and demand careful reading and thought.

This is just another of the many state medicine entering-wedges which we are meeting more and more frequently and with ever increasing irritations. However, like most of the others, it is a problem that must be met and it must be met by the doctors of medicine. Otherwise, as the report of Dr. Hutton points out, it will be met by the government in some other manner which will be much worse for both the profession and for the innocent young men or women, most of whom are worthy and ambitious.

Dr. Hutton is sitting on a powder keg for the rest of us and this Committee feels we all should cooperate with him in every way possible.

In summarizing, may we mention the fact that most of the reports carried praise of those, (and that means most of us) who have given and are giving of our time in examining the young men who are facing induction into the Army. Your Committee feels that perhaps if we praise ourselves less, our public will praise us more.

As to venereal clinics and other like encroachments of state medicine, we may rail against them, we may say we will have none of them, but we will as always, accept our unavoidable responsibility to attempt to guide rather than to refuse to help.

In this connection we note that many of the Councilor reports stress the increasing importance of medical organization in the necessary co-

operation with the multiple agencies of Public Welfare. This seems to us to be the ideal and only sane way of slowing down the intrusion of regimented medicine.

Another splendid work mentioned in several of the reports is the placing of the aged doctor and his dependents on a plane which we trust will rapidly and effectually remove from them the necessity for accepting public charity.

In closing, we wish to note that all but one of the Councilors praised the Post-Graduate Medical Conferences held during the year in ten of the districts. With this reaction, your Committee entirely agrees and hopes that this work may be continued.

Respectfully submitted,

C. B. Ripley, Chairman

A. J. Wiegen

R. L. Reynolds

Dr. Reynolds: I move the acceptance of this report as a whole. (Motion seconded by Dr. L. E. Day, Chicago, and carried).

Dr. James H. Hutton, Chicago: I would like to ask the indulgence of the House to present Dr. Farrell Rice, National Consultant for the National Youth Administration. On Tuesday some of you talked to Miss Stafford and mentioned some objections that I did not know about. After that Miss Stafford prevailed upon Dr. Rice to come from Washington for this meeting. It was very kind of him to come and I hope we may have some remarks.

Dr. Farrell Rice: I want to say that it is a very great honor for you to permit me to even sit in your midst. It was about a year ago that I was asked to help stimulate the health program in the N.Y.A. I find the N.Y.A. changing its ambition. It is changing its ambition to meet the needs of the defense program. We have four or five hundred thousand boys and girls who take advantage of our program each year. Most of them are being trained or plans are being made to train them in defense industry. That idea has been going on and the time has come when in a good many states there are more jobs than boys and girls to take them, such as Connecticut, Maryland and even in Indiana. We did not find that true in the deep South. So again another change may be needed — a controlled scientific employment of these boys and girls to work in defense industries. That is a possibility.

This health program I call a health educational program. The keystone of that is health examination. We have turned this program over to the medical profession in these states. We have asked the Administrator in each state to pick a consultant who will supervise this program. That is what has been done. This health examination will be of such a nature that it might influence the future actions of these boys and girls in many ways. It will also be helpful in picking up defects in these boys and girls. Not many weeks ago in the Journal of the A.M.A. appeared a word which I had never used before. It was pre-habilitation. I would like to use that word, and say that we hope in this way to pre-habilitate these boys and girls before they get into industry or into service.

Not long ago a United States Senator from one of your neighboring states said one of the doctors appointed on this program was a Republican and he wanted to know why it was true. We replied that there are only three factors which concern us in the doctors on this program; first, doctors who are interested in health programs for boys and girls of this age; second, doctors interested in health education. Some doctors do not like to be questioned by patients; some do not mind it; some are better salesmen than others. Third, willingness to cooperate with us for what we can afford to pay. In the Selective Service physicians are donating their services. We are able to pay something. We realize that the examination is worth more than we are able to pay. I would say that it is part of the defense program as much as the Selective Service, because defense industries may be more important than actual military service.

The President: Dr. Rice, we are glad to have you appear before us and glad to hear from you. Thank you.

We shall resume the reading of the reports.

COMMITTEE ON REPORT OF STANDING COMMITTEES

Presented by Dr. H. K. Scatliff, Chicago

Your Committee has examined these reports and commends the activities of the Committee members in toto, instead of calling special attention to individual members.

Attention is called to the Public Relations Committee in their work of protecting individual doctors in the matter of their claims against

accident insurance companies. They are upholding our interest in these matters, and we urge all members to remember this Committee in connection with these claims.

The Medico-Legal Committee under the chairmanship of Dr. Ballinger, is continuing its good work and is able to help in all suits and threatened suits against our members.

Especial attention is called to Dr. Neal's supplementary report in regard to the Legislative Committee. They need all our help in contacting state legislative men in the protection of our professional prerogatives. Volunteers should give their names to Dr. Neal.

Your Committee recommends that the Committee on Relations to Public Health Administration be discontinued for the reason that direct contact in these matters with the State Council is to be maintained by Dr. Roland R. Cross, present Director of Public Health for the State of Illinois.

The Committee on Education and Hospitals has been inactive, but it would appear that this Committee might be re-activated with advantage to our members, and your Committee recommends that this be done.

Respectfully submitted,

H. K. Scatliff, Chairman

H. D. Palmer

C. O. Burgess

Dr. Scatliff: I move the acceptance of this report. (Motion seconded by Dr. F. O. Fredrickson, Chicago, and carried).

COMMITTEE ON REPORT OF COMMITTEE ON MEDICAL BENEVOLENCE

Presented by Dr. F. L. Brown, Chicago

We received the report of the Medical Benevolence Committee and reviewed it. Its splendid work and assistance rendered should be continued with energy. We recommend the adoption of this report.

Respectfully submitted,

Frank L. Brown, Chairman

E. W. Burroughs

H. F. Bennett

Dr. Brown: I move the adoption of this report. (Motion seconded by Dr. Andy Hall, Mt. Vernon, and carried).

COMMITTEES ON REPORTS OF COUNCIL
COMMITTEES*Report of Committee "A"*

Presented by Dr. George W. Post, Chicago

Educational Committee: This report is a most complete resumé of their work and nothing but the highest commendation can be accorded it. This Committee has become one of our most constructive institutions and must be continued as it is as long as its work progresses with the same efficiency which it now shows.

Scientific Service and Post-Graduate Committees: The report of these Committees reflects the value of the work which they are doing. The increase in the number of conferences from four to nine per year indicates the eagerness with which the membership attend it, and also the excellence of the programs which it delivers.

The speakers on these programs are greeted by a favorable audience, eager to hear them and prepared to receive favorably all the valuable information which they can give in the current progress in medicine.

This work is one of the best methods of keeping the standard of perfection of the profession at the highest possible level and must be continued.

The members of the State Society must also continue to cooperate in bringing out all the constructive recommendations which occur to them so that this progress may be continued.

Medical Economics: This Committee is performing a most efficient task in a largely uncharted territory. The problems which it confronts require a prodigious amount of constructive thought and study which is fundamentally important to organized medicine, and this Society must be ever alive to these problems.

Veterans Service Committee: This Committee deserves special commendation for whatever influence it has exerted to prevent the unqualified medical parasites from gaining power and privilege both in the administration of "Selective Service," and in military and naval service.

Respectfully submitted,
George W. Post, Chairman
J. J. Link
Harlan English

Dr. Post: I move the acceptance of this report. (Motion seconded by Dr. L. E. Day, Chicago, and carried).

Committee "B"

Presented by Dr. C. O. Lane, West Frankfort

We, your Committee, appointed to examine the reports on Care for the Indigent, Maternal Welfare, Fifty Year Club, and Committee on Archives, wish to report as follows:

Maternal Welfare: We are of the opinion that the two-way course now being carried on by the Maternal Welfare Committee, viz, the education of the laity and the profession, has done much good. The education of the laity in prenatal care is highly important and necessary if we get the best results in this work. The education of the profession by refresher courses as emphasized by this Committee should be continued.

The lowering of the maternal and infant mortality in recent years, which is the lowest now in the history of the state, has been largely due to the efficient work of this Maternal Welfare Committee, and we recommend that the Committee be commended and continued.

Care of the Indigent: The Committee has found on examining this report that this practice or care of the indigent is carried on in various ways in the various parts of the State. There seems to be no uniformity in this work, and we advise or suggest that this should be freely discussed in the House of Delegates and some definite plan agreed upon to be followed in each county or community. We also recommend that the Committee be continued and that they continue in their efforts to work out the various problems that arise in the administration of this important service.

Fifty Year Club: This Committee found this report to be very interesting and to contain much information relative to the older practitioners of the State. We are especially pleased that all physicians who have been practicing fifty years or longer, are eligible to this Club, whether members of the Society or not — and it is hoped that all physicians eligible will become members in the near future. We suggest that this committee work with and furnish the Committee on Archives such data as it collects, as we believe this will be of great value to the future generations. We recommend the continuation of this Committee.

Committee on Archives: This Committee is doing a commendable work, and we especially endorse the suggestion that each county medical society create a Committee on Archives to secure

such important data as secretary's books, photographs of physicians, newspaper clippings, short biographies, and furnish the Committee with the same.

Respectfully submitted,
C. O. Lane, Chairman
G. L. Kaufman
F. H. Muller

Dr. Lane: I move the acceptance of this report. (Motion seconded by Dr. Andy Hall, Mt. Vernon, and carried).

Committee "C"

Presented by Dr. Frank F. Maple, Chicago

Venereal Disease Control: It is presumed that the Chairman of this Committee for 1940 asked that the Committee be discharged either from lack of State cooperation or a feeling that there was no work for the Committee to perform.

The present Committee feels that their work should be close cooperation with the State and its Syphilis Control Campaign.

This Committee should decide the location of new clinics in accordance with a demand for same. This reporting Committee believes that the desired cooperation with the State will be much easier in the future on account of the apparent desire of the Governor to cooperate with medicine in everything medical.

Advisory Committee to Division of Old Age Assistance: This newest Council Committee is working with the State Department of Public Welfare to develop a program to provide medical care for old age recipients in Illinois.

The recommendation of this Committee relating to physicians' fees is approved by Committee "C." The printed plan of medical care to include the organization of County Societies is endorsed by Committee "C," which realized the considerable task which this Committee faces and commends them on their success.

Inter-Professional Relations Committee: Dr. Edwards has been personally in contact with two of the active members of the Inter-Professional Relations Committee and knows of their work and feels that the Committee is a valuable addition to the Council Committees.

This Committee has called in the allied professions, also the lawyers and ministers, which has resulted in the formation of an Inter-professional Council whose purposes are to cooperate

with existing Committees and promote a close relationship with the other professions.

The Committee asks for a careful consideration of its printed proposals and Committee "C" recommends their adoption.

Advisory Committee to Works Progress Administration: The report of the Advisory Committee to Works Progress Administration shows that the Committee has been taking care of a rather arduous task in a very satisfactory manner. The reports of injuries and the physicians caring for them have been checked and complaints handled so as to prevent abuses.

The report should be accepted and the Committee commended.

Scientific Exhibits Committee: This is the largest scientific exhibit ever presented by the State Society. The exhibits were comfortably arranged, ample room for visiting and consulting groups, view boxes and movies so arranged as to allow a considerable audience without blocking the view of adjacent exhibits. Practically the entire field of medicine is represented.

It is the opinion of this Committee that future meetings of the State Society will arrange for the growing demand for exhibitors' space as recent tabulations show as many visitors as attend the sectional meetings.

Respectfully submitted,
F. F. Maple, Chairman
G. H. Edwards
J. H. Hermetet

Dr. Maple: I move the adoption of the report. (Motion seconded by Dr. T. B. Knox, Quincy, and carried).

Committee "D"

Presented by Dr. Tom Kirkwood, Lawrenceville

Cancer Control: The report of this Committee shows that excellent progress is being made towards meeting this problem and the Committee is commended for the fine work which it has done. Through interlocking membership in different committees this group has been in close contact with cancer control efforts in all parts of the State and has been able to cooperate with other committees and groups.

The Advisory Board to the Division of Cancer Control, Department of Public Health, is supervising the publication of a book on cancer which will be distributed to every physician in the state

by the Department of Public Health. This should make a valuable contribution to the physician's knowledge of cancer and its treatment. The attitude of the Committee toward cooperation with the State Department of Public Health is most sincere and meets with our approval.

We have studied the supplementary report of Mrs. Arthur I. Edison, State Commander of the Women's Field Army, and commend this organization for its work in distributing educational literature concerning cancer throughout the state. The Department of Public Health has cooperated with the Women's Field Army by supplying the film, "Choose to Live," and by furnishing projectors and operators for showing this film which has been favorably received wherever shown. This will be of great value in educating the public concerning the early recognition and control of cancer.

The bill to provide State aid for needy cancer patients and for establishing cancer clinics in certain hospitals meets with our approval.

Child Health Problems and Mental Hygiene: We commend these Committees for the enormous amount of work which has been done throughout the state and the cooperation which they have succeeded in getting from county societies, women's clubs, clergymen, judges, American Legion Posts, and others, preparatory to introducing a bill in the Legislature providing for the care of mentally handicapped children. This is Senate Bill No. 367, known as the Keane-Bidwell Bill. The fact that this bill passed the Senate without one dissenting vote shows how carefully the Committee's preparatory work was done. This bill will be known as the Rategan-Saltiel Bill in the House.

Industrial Health: We recognize the difficulties with which the Committee on Industrial Health has to contend in attempting to establish standards concerning proper relationship between the "physician in industry, the employer, employee, his fellow practitioners, and various agencies in the government and in the field of insurance." The problem of establishing the proper sphere of activity of industrial nurses, hygienists and engineers is equally difficult. We agree that many of the problems involved depend upon local conditions with which the county societies are best acquainted and that the local societies should have programs covering local in-

dustrial diseases and other phases of this situation.

We consider it advisable that each county society should have a Committee on Industrial Health. This Committee can communicate with the state committee about local problems concerning which it needs more information. The speakers' bureau which the state committee proposes is an excellent method of supplying such information.

We commend this Committee for the excellent work it has done.

Respectfully submitted,
Tom Kirkwood, Chairman
I. S. Trostler
W. W. Furey

Dr. Kirkwood: I move the adoption of this report. (Motion seconded by Dr. Emmet F. Keating, Chicago, and carried).

COMMITTEE ON SCIENTIFIC WORK, SOCIAL
SECURITY PROBLEMS AND REPORT OF THE EDITOR

Presented by Dr. L. O. Frech, Decatur

Scientific Work: This Committee in its review of the scientific work of this Society as presented at this annual meeting wishes to express its lack of ability in properly appraising such a vast amount of work in so short a time and to acknowledge the shortcomings of its members in reporting on so varied a field of medicine.

In a general survey of program and work our conclusions lead us to make the following report:

1. That the make-up of our scientific programs is varied to the extent that every physician should find plenty of material to keep him interested.

2. That the scientific work of this Society is of sufficient caliber to satisfy every serious student of medicine.

3. That the arrangement of this scientific work is such that a minimum of conflicts occur.

Your Committee on Report of Scientific Work wishes to commend your Committee on Scientific Work and to praise their ability in assembling, arranging and executing programs which so thoroughly cover the field of medicine.

(Dr. Frech: I move that this portion of the report be adopted. Motion seconded by Dr. P. J. McDermott, Kewanee, and carried).

Social Security Problems: It is the sense of this Committee that our report on Social Secur-

ity Problems is superfluous as it is, or could properly be, covered by Committee "C" under title (G), "Agenda for first meeting — House of Delegates."

(Dr. Frech: I move that this portion of the report be adopted. Motion seconded by Dr. E. E. Davis, Avon, and carried).

Report of Editor: Inasmuch as there is no report of the Editor this Committee is unable to make a report, or any comment, on such.

Nature having decreed that our Editor, Charles Joseph Whalen, cease his untiring efforts in behalf of the Illinois State Medical Society prior to his having written an annual report, it therefore becomes our pleasure to say something briefly about the man and his work.

His passing has been a loss to this Society, which with the oncoming years, will cause a marked realization of his usefulness.

He was a man of keen foresight, with an understanding of medical, social and economic problems. He was a man with sufficient fortitude to fight for a principle and with aggressiveness to lead in a cause for the right. He was a friend to those who would accept his friendship and of whom there were a great many.

His editorials in the State Journal were illuminating in that they showed his understanding of the problems of medicine and much that his writings forecast is fast coming to pass.

It is the hope of this Committee that the Illinois Medical Journal will in the future be headed by men as efficient, capable and far-seeing, and to whom we may pledge as much of our loyal support.

Respectfully submitted,
L. O. Frech, Chairman
William E. O'Neil
Paul Headland

Dr. Frech: I move the adoption of the report as a whole. (Motion seconded by Dr. T. B. Knox, Quincy, and carried).

COMMITTEE ON MISCELLANEOUS BUSINESS

Presented by Dr. P. J. McDermott, Kewanee

Your Committee has reviewed the report of the Women's Auxiliary as given by the President and wishes to highly compliment the organization for its outstanding work during the past year, especially their work in obtaining subscriptions to Hygeia and for their diligent work in behalf of the Benevolence Fund for indigent doctors

and their widows, and hope that this fine work will continue. Mrs. Dooley should be highly complimented on her untiring effort to spread the gospel of the Woman's Auxiliary throughout the state and nation.

Some counties could not be visited due to the fact that the budget would not permit, therefore this Committee recommends that sufficient financial assistance be given to the State Auxiliary to continue their good work.

Respectfully submitted,
P. J. McDermott, Chairman
A. M. Purves
O. S. Pavlik

Dr. McDermott: I move the adoption of the report. (Motion seconded by Dr. Andy Hall, Mt. Vernon, and carried).

COMMITTEE ON REVISION OF CONSTITUTION AND BY-LAWS

Presented by Dr. Walter E. Stevenson, Quincy

Your Reference Committee has very carefully reviewed the revised constitution and by-laws as presented by the Committee. The Chairman of the Committee that was appointed by the President to revise the constitution and by-laws attended all of our meetings and he has agreed to everyone of the slight changes that we have to suggest. What I propose to do is not to read the constitution and by-laws in toto, but to tell the changes that we have to suggest. Each one of you has a copy and can follow me. I will go over the whole thing so you will not have to adopt it section by section but, as the Committee suggests, adopt it as a whole.

Galley 1: Article IV, Section 2, should be changed and insert the word "be" before members, and the word "and" before citizens.

Galley 2: Article IX, Section 1, — Delete "a" so as to read "secretary-treasurer." Delete the last sentence of Section 1, reading, "The offices of secretary and treasurer may be combined."

Section 2, second line, delete the word "and," to read "secretary-treasurer."

Galley 3: No change.

Galley 4: Chapter VII, Section 5, change to read "The secretary-treasurer shall . . ."

Section 6, change to read "The Secretary-Treasurer . . .", and delete the words, "and turn over to the treasurer immediately."

Galley 5: Chapter VIII, Section 5. Delete last

sentence reading, "All money received by the Council . . . shall be approved by the Council."

Galley 6: Chapter VIII, Section 7, Delete word "or," to read "secretary-treasurer."

Chapter IX. Delete, "A Committee on Relations to Public Health Administration."

Section 3. Add word "medical" before "legislation in first sentence."

Section 5. First sentence delete words, "of this Society." In fourth paragraph delete words, "are requested" and substitute word "shall," and in last sentence change word "should" to "shall."

Galley 7: Delete Section 8 entirely.

Galley 8: Chapter X, Section 13, delete words "and report upon," add comma and word "and" after changes, and delete words "The Committee."

Galley 9: No change.

Galley 10: Section 6. Begin with "This Committee sitting as a trial body, shall find the accused either guilty or not guilty."

Galley 10: Section 6, change word "decree" to "recommend" in the first paragraph.

In the third paragraph of same section, the first line should be changed to read, "If the findings of the trial body are against the accused," etc.

Sections 7 and 8 are to be combined by inserting a period after the word "case in the third line, and joining the section at that point to Section 8.

Dr. L. E. Day, Chicago: There is an error in printing in Section 4 on Galley 10. Paragraph No. 6 has been omitted, not purposely. Therefore, paragraph No. 6 should be inserted to read, "Testimony not bearing on the charges should be objected to, and if sustained by the trial court, stricken from the record."

Galley 11: After the first paragraph of Section 9 ending with the words "its decision," put a comma and add the words omitted from Section 7 on Galley 10, "and shall report in writing Procedure at the former trial." This entire paragraph now becomes Section 8.

The second paragraph of the present Section 9, becomes Section 9.

Chapter XIII, Section 2, last sentence delete words "appeared, and will not appear in Medical print before it has been published in the Illinois Medical Journal," and add in their place the words, "been published."

Chapter XIV, shall be changed to read as follows: "The House of Delegates may amend any article of these By-Laws by a two-thirds vote of the delegates present at any annual session, provided that such amendment shall not be acted upon before the day following that on which it was introduced."

Galley 12: No change.

Dr. Stevenson: I move that this constitution and bylaws be adopted in toto with the changes suggested and proposed by the Reference Committee. (Motion seconded by Dr. L. E. Day, Chicago).

Dr. W. E. Kittler, Rochelle: I think the Committee has done a noble job. I think there are a few things to be added. I would like to be permitted to bring before this House of Delegates a few suggestions. In Galley 3, Chapter II, Section 1, I would suggest deleting the words, "extending invitations."

Dr. Stevenson: How are you going to a place if they do not extend an invitation?

The President: If there is no invitation the Council can arrange a meeting. That is left open.

Dr. J. S. Nagel, Chicago: By law, the Council can provide a place.

Dr. Kittler: It does not say so.

Dr. Nagel: It does not make any difference; it does not say it cannot.

Dr. Kittler: In Chapter V, Section 2, sometimes it is going to be difficult to get a petition from twenty component societies. I would like to suggest a change.

Dr. E. S. Hamilton, Kankakee: There has never been a petition to call a special meeting of the House of Delegates without the consent of the President or the Chairman of the Council. If anything should come up that we had to hold a special meeting of the House of Delegates, certainly there would be twenty county societies to sign a petition if the matter were of sufficient importance to warrant calling a special meeting of the House.

The President: The question is called for.

Dr. I. S. Trostler, Chicago: I casually read this constitution and by-laws and found seven typographical errors, six expressions, requiring a descriptive word, and twenty instances where transposition and deletion would make a more readable phrasology. I move that, as an amend-

ment, this matter be re-referred to the Committee.

Dr. L. O. Frech, Decatur: I rise to a point of information. Under "Honorary Members" is there any provision in the by-laws whereby it prevents honorary members from voting?

Dr. E. P. Coleman, Canton: He is not a member of the House of Delegates.

Dr. K. M. Manougian, Elgin: I would like to make mention of a matter of importance to my county which I wish this body would clarify. It relates to Article IV, Section 2 of the Constitution. Recently my county society drew up an amendment to its by-laws to the effect that a man shall be a graduate of a Class A school, otherwise he shall not be allowed to be a member of our Society. As far as my judgment goes, we would be foolish to try to bar a man to practice if he were licensed by the state. The object of this is to ward off certain graduates from secondary schools. If we shall bar a man coming from a secondary school and let other things go, we are making a mistake. Can we as a county society adopt such an amendment to our constitution?

Dr. J. S. Nagel, Chicago: I would like to answer the gentleman. In the first place, every county society is the judge of its members. The constitution and by-laws of the state has nothing to do with it. If the gentleman wants to write something into this constitution and by-laws of that nature we will be in the same fix as the A.M.A. was in Washington.

The President: That is not up for discussion here. The question is called for.

(Motion to adopt the report of the Special Reference Committee was carried).

Dr. N. S. Davis III, Chicago: We have adopted the report of the Reference Committee, shall we adopt the constitution and by-laws as recommended by that Committee?

The President: Yes.

Dr. Davis. I move that the constitution and by-laws as revised be adopted. (Motion seconded by Dr. E. E. Davis, Avon, and carried).

REPORT OF COMMITTEE ON RESOLUTIONS

Presented by Dr. D. B. Pond, Chicago

Your Committee on Resolutions submits the following report:

1. *Memorializing Dr. Henry G. Horstman*

(See Page 76)

Regarding the resolution referring to the death of Dr. Henry G. Horstman, the Committee endorses the same unanimously, but inasmuch as there were several other prominent, influential and highly esteemed members of this organization removed from our midst by the Grim Reaper during the last fiscal year, this Committee recommends that there be a suitable resolution adopted by this body paying proper tribute to each of them, either collectively or individually, and that the Secretary be instructed to forward a copy of the same to the families of these departed members.

Dr. Pond: I move the adoption of this resolution.

The President: I suggest that the Committee draw up a resolution and send a copy to the Secretary for publication in the State Journal and for submission to the families.

(Motion seconded by Dr. E. E. Davis, Avon, and carried).

2. *Unapproved Medical Schools*

(See Page 78)

Dr. Pond: I move the adoption of this resolution.

Dr. Andy Hall, Mt. Vernon. I second the motion with the suggestion that if it passes, the Secretary send a copy to the secretary of any unapproved medical school in the state, the Secretary of the Chicago Medical Society, the Director of Medical Education and Registration, and the head of the Board of Health.

The President: I understand this is the feeling of the House of Delegates.

Dr. John S. Nagel, Chicago: I would like to call your attention as to whether there is any question of legality in this and whether the Illinois State Medical Society might not be laying themselves liable along the lines of the suit going on in Washington. Before we adopt this resolution I think we should have the wording checked by our attorney before transmitting it to the attorney of the U. S. Government.

Dr. V. A. McClanahan, Aledo: That is the function of the state, not of the Society.

Dr. Hall. We are not passing any law.

Dr. E. S. Hamilton, Kankakee: Might I have that section read about disciplining members teaching in these schools.

(Dr. Pond reads Section)

That is the part we must consider very care-

fully. I would hate to see Dr. Templeton or Dr. Camp sued by the Government. We should consider very carefully that particular section.

Dr. R. K. Packard, Chicago: I wonder if this House of Delegates can pass a resolution to discipline a member. That is the function of the local county society. We cannot do that.

Dr. Nagel: I would like to make a substitute motion that this entire matter be referred to the Council of the State Society, and that they take the matter up and consider it as it should be. I am still frank to tell you that if this resolution is adopted here we may be in the same classification as the A.M.A. and the Medical Society of the District of Columbia. (Substitute motion seconded by Dr. L. O. Frech, Decatur).

Dr. P. R. Blodgett, Chicago Heights: This resolution if adopted is contrary to the by-laws of this society or any other society. The only body which has a right to discipline a fellow member is the constituent branch, which is the county medical society or the Chicago Medical Society. The charges are referred back to the county where the man belongs.

Dr. W. E. Kittler, Rochelle: I would like to hear Dr. Mundt discuss this. I think it has some reference to Dr. Mundt's resolution.

Dr. G. Henry Mundt, Chicago: There is no question in my mind but that this is loaded with dynamite. I have talked with many men over many years about the feasibility of closing the Chicago Medical School. I thought at one time that that would be done in an orderly fashion and then I found I was in error. I would certainly stand with John Nagel that the thing is dangerous. This is even stronger than my resolution was because the Mundt resolution was only an advisory one, an affair of the Council on Medical Education and Hospitals. I am thoroughly in favor of Dr. Nagel's motion that this be referred to the Council.

Dr. Hall: I do not think we would get into serious trouble. Here is a map of the United States (appearing in a recent number of the Journal of the A.M.A.) showing where students from unapproved schools are locating. You notice they are locating in Illinois and scarcely in any other states except Massachusetts. I understand that this Society cannot do anything, it is up to the county society. It is a disgrace.

Dr. Pond: I will accept the substitute amendment. (The seconder also accepts).

Dr. Hall: In rebuttal of what Dr. Neal said, if this report is correct the percentage of failure is 2.5 for Illinois, Massachusetts 46, New York 34.

Dr. Neal: It will show you in the column marked, "Average for the United States."

Dr. Nagel: I rise to a point of order. That question has nothing to do with the motion I have made. The discussion before the House is whether the substitute motion I made to refer it to the Council with power to act, is to be passed.

Dr. Pond: The Chairman of the Committee on Resolutions accepts the substitute motion.

Dr. H. A. Beam, Moline: What was done with the motion I made last year about a Committee to see the Attorney General?

The President: The Committee was appointed but never acted.

Dr. Pond: Before you put the question, is it the pleasure of the House of Delegates to take the same action on other resolutions pertaining to the same problem?

(Motion to refer resolution to Council with power to act is carried).

3. *Diplomatic Immunity*

(See Page 79)

Dr. Pond: The Chairman recommends its adoption. I so move. (Motion seconded by Dr. Andy Hall, Mt. Vernon).

Dr. Neal: As a non-member of the House, I would say that the Chairman of your Resolutions Committee took a moment at the preamble of this to say that he thought there should be some changes made in the resolution. It seems to me that this resolution should be sent to the Council. It is something the press is going to jump on.

Dr. V. A. McClanahan, Aledo: I move as a substitute motion that the resolution be referred to the Council. (Motion seconded by Dr. T. B. Knox, Quincy).

Dr. P. R. Blodgett, Chicago Heights: There are other things that should be well considered in this line. For the last eight years we have had subversive influences coming from Washington, and it seems to me the Federal Government should decide in this matter. It is not matter that concerns us now. I know of what I speak. I have a boy who will be in there. He was a year old before I saw him. This question of labor

strikes, and sabotage are part of this same problem. A year from now may be these young men will not be here, they will be in the armed forces loading guns. It seems to me that this question and the question of other activities that undermine the defense of my country and yours might well be considered.

Dr. Pond: I accept the substitute motion to refer it to the Council. (Motion carried).

4. *Establishment of Venereal Clinics*
(See Page 81)

Dr. Pond: I move that this resolution be referred to the Council. (Motion seconded by Dr. J. H. Hermetet, Macomb, and carried.

5. *Graduates From the Chicago Medical School*

Be it resolved, that the House of Delegates of the Illinois State Medical Society in regular session assembled, hereby charges as follows:

That the members of the Society whose names are listed in the attached Chicago Medical School Bulletin as connected with that school, have by such association violated Section 1, Article I of Chapter III of the Principles of Medical Ethics of the American Medical Association and Article II of the Constitution of the Illinois State Medical Society.

Said Section 1, Article I of Chapter III of the Principles of Medical Ethics reads in part as follows: "The obligation assumed on entering the profession . . . demands that he (the physician) use every honorable means to uphold the honor and dignity of his vocation, to exalt its standards and to extend its sphere of usefulness."

Said Article II of the Constitution reads in part as follows: "The purpose of this Society shall be . . . to elevate the standard of medical education;"

These charges are based on evidence that the Chicago Medical School has not been able, in over twenty years, to attain the minimum standards of all but a few of the States or of the American Medical Association, for approved medical schools.

This House of Delegates is informed, believes and therefore charges that the members of the Society listed in its Bulletin as connected with the Chicago Medical School have failed to exalt the standards of the profession and to elevate the standard of medical education, and that therefore their conduct is unprofessional.

The Chicago Medical School is recognized by the licensing boards of one or two states that must admit to examination graduates of any incorporated medical school and by that of the State of Illinois. It has not fully satisfied the requirements of the Department of Registration and Education of Illinois and has not met the Essentials for an Approved Medical School of the American Medical Association. Its graduates are not eligible for commissions in the Medical Corps of the Army and Navy. Few of its teachers are certified as specialists in their field by the National Boards.

The students in this school come from all parts of the country, but almost all of them practice in Illinois. During the last few years its graduates have constituted almost twenty per cent of the additions to the profession in Illinois.

For more than twenty years, the Illinois State Medical Society has tolerated the Chicago Medical School in hopes that it would be able to elevate its standards to meet the Essentials of the American Medical Association. However, in spite of many reorganizations and of changes in the faculty, so frequent that they are kept track of with difficulty, it has, in all these years, failed to do so. It has forfeited all claim for further toleration.

Be it resolved, that association with the Chicago Medical School in any capacity except that of alumnus, be considered a failure to exalt the standards of the profession and failure to elevate the standards of medical education and a violation of Sections 1 and 7, Article I, Chapter III of the Principles of Medical Ethics of the A.M.A. and of Article II of the constitution of the Illinois State Medical Society.

Dr. Pond: This resolution will be referred to the Council along with Dr. Hall's resolution.

6. *Corporations of this State Engaged in the Practice of Medicine*

Be it resolved, that the House of Delegates of the Illinois State Medical Society in regular session assembled, hereby charges as follows:

That those members of the Society whose names are listed in the attached Bulletin of the University of Chicago Medical Schools as employees of the University of Chicago Clinics have violated Section 5, Article VI of Chapter III of the Principles of Medical Ethics of the American Medical Association.

Said Section 5, Article VI of Chapter III reads as follows: "It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from fees, salary or compensation received to accrue to the lay body or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy."

These charges are based on the fact that the University employs these physicians to render service to people under conditions which permit a direct profit from fees received by the University to accrue to it.

It is charged that because they are so employed by the University of Chicago, the conduct of these members of the Society is unprofessional.

The Supreme Court of the State of Illinois has decided that a corporation cannot qualify to engage in the practice of medicine in this State. With utter disregard for this decision, several corporations, among which are the University of Chicago and the Public Health Institute, have continued to engage in the practice of medicine for revenue through the agency of practitioners of medicine who are licensed to practice medicine in this State.

Association with such corporations as are engaged in the practice of medicine gives cause for revocation of the licenses to practice of such doctors of medicine and violates Section 5, Article VI of Chapter III of the Principles of Medical Ethics of the American Medical Association. Those doctors of medicine employed by the Public Health Institute have not been members of the Illinois State Medical Society as the Institute also violates Section 4. Article 1 of Chapter III of said Principles of Medical Ethics.

Be it resolved, that employment by the University of Chicago Clinics is unprofessional as thereby a physician disposes of his professional attainments or services to a lay educational corporation under terms which permit a direct profit from the fees received to accrue to the University employing him. Such procedure is beneath the dignity of professional practice, is unfair compe-

tition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy.

Dr. Pond: This Committee recommends that this resolution be referred to the Chicago Medical Society for their further consideration and action before being presented to this body.

This resolution will be referred to the Council along with Dr. Hall's resolution.

7. Status of Women Physicians in the Armed Forces of the United States in Time of War

Whereas, the United States of America is at present engaged in a vast Preparedness program which includes a listing of members of the Medical Reserve Corps available for active service, and

Whereas, there are approximately 8,000 women physicians and surgeons in the United States who form only a small minority group in the 175,000 registered physicians, and

Whereas, the United States Government has to date taken no cognizance of these women physicians in time of War except to appoint them as contract surgeon in a few isolated cases — and the status of the contract surgeon is definitely inferior to the status of the man physician in the Medical Reserve Corps on three accounts:

First, there is no military ranking, hence curtailment of authority and the necessity of trying to do work under anomalous conditions.

Second, inferior salaries.

Third, no wartime insurance.

And whereas, the women physicians and surgeons of America demonstrated their fitness for wartime service during the first World War when they raised funds, financed units, and staffed hospitals with well trained officers, in France and Serbia and did heroic work in the devastated areas, and thereby proved that sex does not count in times of National disaster and medical emergency, but that ability and skill do, and

Whereas, the Government has already granted women nurses Army rating with proper rank, pay, and war risk insurance, and

Whereas, the members of the American Medical Women's Association are for the most part members of the American Medical Association, pay regular dues, and enjoy all the privileges of full membership, therefore

Be it resolved, that the Illinois State Medical Society recommend that the women physicians and surgeons of America become eligible for the Medical Reserve Corps of the United States Army and Navy and be granted the full privileges enjoyed by the men physicians, and

Be it further resolved, that the Illinois State Medical Society instruct their delegates to the House of Delegates of the American Medical Association, that this business shall be laid before the House of Delegates of the American Medical Association for their favorable consideration at the annual meeting in Cleveland in June 1941.

This was endorsed by the Medical Women of the State of Illinois at their meeting this morning, May 21, 1941.

(Signed)

Carroll L. Birch, President
Bertha Van Hoosen
Eva M. Wilson
Lucille H. Snow
Marie Ortmyer
Elizabeth R. Miner

Dr. Pond: The Committee makes no recommendation.

Dr. V. A. McClanahan, Aledo: I move that it be referred to the Council. (Motion seconded by Dr. P. J. McDermott, Kewanee).

Dr. G. Henry Mundt, Chicago: I am quite certain that we should do something a little more active about this than to refer it to the Council. I am very serious about this thing because this organization of women physicians has been advocating for a long time that they are entitled to a member in the House of Delegates of the A.M.A. In my opinion they are not. We have in Chicago a group of very fine medical women and inasmuch as this group in Chicago has asked that this House pass this resolution I see no reason why we should not do that. and I see many reasons why we should. Therefore, I move as a substitute motion that the House of Delegates approve the resolution as introduced. (Motion seconded by Dr. P. R. Blodgett, Chicago Heights).

(The substitute motion was carried. The vote on the motion as amended was carried).

Dr. Pond: I move the acceptance of the report as a whole as amended. (Motion seconded by Dr. E. E. Davis, Avon, and carried).

Dr. T. B. Knox, Quincy: I would like to

introduce the following resolution.

Resolved, that we, the members of the House of Delegates of the Illinois State Medical Society, extend our sincere appreciation to the Chicago Medical Society and the Auxiliary thereof, Dr. H. P. Saunders and his Committee on Arrangements, Mrs. Esther Fraser, the Assistant Secretary of the Chicago Medical Society, and her force, to the Mayor and the Association of Commerce of the City of Chicago, to the management of the Palmer House, to the Press, and to all others who have contributed to the success of this meeting and the friendly treatment we have received.

I move the adoption of this resolution. (Motion seconded by Dr. G. Henry Mundt, Chicago, and carried).

The President: There is no unfinished business. We now come to new business.

Dr. P. R. Blodgett, Chicago Heights: So there may be no question about the combination of the offices of Secretary-Treasurer, I wish to nominate Dr. Harold M. Camp as Secretary-Treasurer. (Seconded by Dr. W. E. Kittler, Rochelle, and carried).

The President: The next order of business is the election of Emeritus Members.

The Secretary. We have had submitted to us a list of members who are qualified for Emeritus Membership, by the component county medical societies. The list follows:

J. C. Egan, 4552 Beacon St., Chicago
George W. Hall, 5336 University Avenue, Chicago
Rudolph Holmes, 21 Oxford Road, University, Va. (C.M.S.)
O. W. Lewke, 2349 N. Kedzie Blvd., Chicago
W. V. Guttery, Logan County
Charles Rembe, Logan County
Monroe Etherton, Carbondale
J. W. Robertson, Coulterville
H. O. Munson, Rushville
C. E. Soule, Beardstown
A. R. Lyles, Virginia

Dr. P. R. Blodgett, Chicago Heights: I move that these be elected to Emeritus Membership. (Motion seconded by Dr. E. E. Davis, Avon).

Dr. T. B. Knox, Quincy: Without any author-

ity I would like to have you add to that list Dr. Wells of Pittsfield.

The Secretary: I think he has been made an emeritus member. He is seventy-five or six years old and partially paralyzed. He was secretary of the county society for some 20 years. If he has not been made an emeritus member I think he should be included.

Dr. P. R. Blodgett: Include him in my motion. (Motion carried).

The Secretary: Mr. Hennessey of the Association of Commerce is in the audience. I would like to ask permission of the Chair to have him say a word.

Mr. Hennessey: I just want to say that it was awfully nice of you to come to the city of Chicago. We have tried to be helpful wherever we could. I hope that your meeting here was so successful that you will want to come again.

The President: The next order of business is the induction of the President-Elect. I am going to ask three classmates of Dr. Phifer to escort him to the platform, Drs. Albright, Kitter and Knox.

Gentlemen, there have been many pleasant things connected with the presidency of this Society and some others not so pleasant, of course. Now it is my pleasant duty to induct my successor into office. I know he is competent, I know he is earnest, a man of integrity who will serve us well. Dr. Phifer, I hand you this emblem of authority. It is to be used when you see fit and as best you see fit. I wish for you a successful administration.

(Dr. Phifer's acceptance speech appears on Page 12 of this issue).

Dr. J. S. Nagel, Chicago: I wish to move a vote of thanks to the retiring president for the intelligent, kindly and efficient manner in which he conducted the business of this House of Delegates. (Motion seconded by Dr. E. E. Davis, Avon, and carried).

Dr. Templeton: I want to thank you for all this expression and for all the kindness. I go out of office with no ill will toward any member of the Illinois State Medical Society.

On motion by Dr. L. E. Day, Chicago, seconded by Dr. E. P. Coleman, Canton, the House adjourned *sine die* at 12:35 P. M.

INSURED BRITISH WORKERS FOUND TO HAVE MANY PHYSICAL DEFECTS

The claims that compulsory health insurance in this country will result in a healthier population appear to be refuted by the large number of physical defects found in an examination of a group of English working people who are under national health insurance, *The Journal of the American Medical Association* for March 29 says in an editorial:

"An opportunity to compare the health of a sample of British workers as to physical condition and morbidity with the numerous reports of similar investigations in the United States is afforded by an article which appears in a recent issue of the *Lancet*.

"The report covers an examination of 1,592 workers, including 1,352 men and 240 women. There was nothing amateurish or superficial about the examination. 'Many were seen twice and a few three times; some 60 were sent for a second opinion to members of the consulting staff of the local municipal hospital. The pathological and x-ray facilities of the hospital were freely used; though it was not possible to do routine radiography of the chest or examine the cerebrospinal fluid.' The distribution by age groups seems to have been fairly representative of a general working population, there being 290 between 17 and 29, 468 from 30 to 39, 319 from 40 to 49 and 275 from 50 to 64. Only workers actually employed were examined. Twenty employees were excluded because of absence on account of sickness. The report is detailed as to the defects discovered."

In a table containing only the main classifications of the original list *The Journal* shows the following defects found in 1,352 men: heart and blood vessels, 298; digestive tract, including dental, 1,485; lungs, 50; nervous, 18; urinary and reproductive organs, 42; chronic rheumatic, 21, occupational, 8, and miscellaneous, 836.

"Concerning the results," the editorial continues, "the examiner says:

"All the men and women examined were under national health insurance. The general standard of health cannot, therefore, be considered satisfactory. Of the 1,592 examined, 112 (7 per cent) would probably have been rejected for life insurance and might therefore be described as suffering from major disorders; many more would have been weighted. Minor disorders were legion and included bad teeth, dyspepsia, hernia, chronic bronchitis, defects of hearing and vision, anemia, varicose veins and deformed feet.

"Of the 112 men and women in whom major disorders were found, 12 were, or had recently been, under medical care at the time of the examination. Similar records showed that in the case of varicose veins, a minor disorder of the 252 men who had the condition, only 7 had ever consulted their doctors about it. For the most part both major and minor disorders were neglected or unsuspected. Inquiry did not confirm the disinclination to seek advice noted at the Peckham Health Centre, although the workers

as a rule sought medical attention only for the alleviation of symptoms which were both unpleasant and disabling. Actually, 50 per cent had seen their doctors during the preceding two years, and 22 per cent between two and five years ago. Most of the major disorders found were symptomless or symptoms which did not interfere with the daily work. The minor disorders were usually quite obvious; they were seen but not perceived. Bad teeth, as far as most of the subjects were aware, were quite natural and normal. Most of the major disorders would have benefited from medical care, if only as management. The minor disorders were largely avoidable and unnecessary; they could have been prevented, controlled or cured.

"These findings demonstrate the value of routine medical inspection or health examination of adults, such as those already taken for granted in the school population. Once organized, regular health examinations would mark a major advance in public health.

"Since this examination is based on a fair sample of the English working population, it seems to offer a challenge to those who claim that compulsory health insurance encourages preventive care, discovers disease in its early stages, assures adequate care of the insured at all times and maintains a higher physical standard for the insured than is found among the noninsured population of a like kind in the United States."—*Journal of The Indiana State Medical Association*.

GENERAL PRACTITIONER

In an editorial in *The Journal* for September, 1940, reference was made to the ideology of certain groups of specialists in which the general practitioner was viewed as an agent rather than employer of the specialist.

The report of the Graduate Commission which initiated that editorial has also stimulated quite general comment as to means of protecting the man in the field from this short-sighted reversed domination. Some of the "throw-away" type of journals have made use of the aroused interest to attack the set-up of the American Medical Association, pointing out the predominance of specialists in the controlling positions of the national organization. It is hard to conceive, even if this were true, that these men have other than the best interests of the medical profession at heart in their deliberations and decisions. Nevertheless, it is easy to lose sight of the general practitioner's problems. They often seem trivial to those whose view-points must include the broad picture of medicine as a whole. Just as one or two pin holes do not destroy the beauty of a great picture, enough pin pricks do irreparable damage and something valuable is lost forever. Therefore, it would seem worthwhile to repair the pricks in the morale of the profession as well as to prevent further irritating practices before a rift may be caused in the unified profession.

It seems to be a challenge to the officers of the A.M.A. and the delegates thereto. One possible remedy might be the inclusion of a practicing general practitioner on each of the specialist boards. There are many of these men, the type of physician who has a broad viewpoint of medicine as well as a personal knowledge of the practitioner's problems. Another remedy which has been frequently mentioned is the establishment of a general practice board. This may have merits though its function seems rather obscure. Possibly this board, acting as a liaison group between the profession in general and the specialists, would render yeoman service. The mechanism is not of serious consequence. The result must be accomplished; that is, the family physician must be preserved if the private practice of medicine is to be continued; to preserve the family physician he must be encouraged in the *general* practice of medicine. The specialist must be his advisor and counselor; a specialized instrument to be used for the special case by the general practitioner who should be educated as to how, and when, and where to use this instrument.—*Michigan Journal, M.S.M.S.*

TREATMENT OF MIDDLE EAR DISEASE

A regimen for the prevention of and active treatment using helium-oxygen mixtures for aero-otitis media in tunnel workers is reported in *The Journal of the American Medical Association* for April 19 by William H. Requarth, M. D., Chicago.

Preventive measures offered by Dr. Requarth are largely concerned with physical examinations before employment inasmuch as he advises that persons predisposed to infections of the upper part of the respiratory tract should not engage in such work. Adequate instruction of employees also is imperative, he says. This should include a demonstration of Valsalva inflation of the ear which involves closing the nose and mouth and then forcefully exhaling. Lock tenders should stop after every 2 to 3 pounds increase in pressure and ascertain whether all workers have opened their ears. Those who have failed to do so should be referred to a physician for treatment. This is important inasmuch as many men will otherwise remain in the lock and attempt to open their ears by vigorous inflation. Treatment is directed toward equalization of the pressure in the middle ear by re-establishing communication of the middle ear and its passages to the pharynx. The nose is sprayed thoroughly with chemicals preparatory to the administration of helium. The gas is given under pressure through a mask or breathing bag in a mixture consisting of eighty parts of helium and twenty parts of oxygen. The average patient obtains relief in four minutes. Obstinate cases may require ten minutes. Longer treatment is useless.

During the year 1940 approximately 35,000 people were killed and 1,300,000 injured in automobile accidents. Deaths from this cause averaged almost 100 per day.—*Ohio State Medical Journal*.

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

MEDICAL CARE PROGRAM

The Division of Old Age Assistance, in accordance with plans for a more adequate medical care program for recipients, has asked the Illinois State Medical Society to appoint a Medical Advisory Committee. Some of the problems upon which the Division feels the need of professional advice are: the discriminating use of existing facilities for medical care; interpretation to the professions and the community of the purpose of the program; establishing standards for medical care compatible with good medical practice.

The Committee was recently appointed by the President of the Society and includes the following physicians: Dr. Charles A. Phifer, Chairman, Chicago; Dr. Harold M. Camp, Secretary, Monmouth; Dr. E. P. Coleman, Canton; Dr. Julius H. Hess, Chicago; Dr. James H. Hutton, Chicago; Dr. John R. Neal, Chicago.

Several members of the Committee have served on the advisory committee to the Chicago Relief Administration since the inception of its medical program seven years ago, and are therefore thoroughly familiar with the problems of providing medical care for recipients of assistance. Other members of the Committee have held offices in the Illinois State Medical Society and the American Medical Association.

Representatives of the Division have held two meetings with the Committee in Chicago, and regular monthly meetings will be held hereafter. The Division will present to the Committee for approval all proposed general policies and problems regarding medical care. It is believed that the professional advice so obtained will enable the Division to plan a program which will greatly improve its service to the needy aged of Illinois.

Fletcher C. Kettle, Superintendent, Wallace Clark, Assistant Superintendent, and Miss Pearl Bierman, Medical Social Consultant, represented the Division of Old Age Assistance at the meetings.

GREENE COUNTY

MEDICAL SOCIETY MEETINGS

Dr. William H. Garrison, Secretary, reports that the Greene and Jersey County Medical Societies have been holding joint monthly meetings for the past two years, alternating between Jerseyville and points in Greene County. This procedure has proven quite satisfactory. The meetings for the past three months have been held as follows:

March 14, 1941 was held in Carrollton. This meeting was addressed by Dr. G. C. Otrich of Bellville, Illinois. His subject was *Nose and Throat Conditions of Interest to the General Practitioner*.

April 11 meeting was held in Jerseyville and was addressed by Dr. W. J. Morganson of Springfield, whose subject was *Skin Diseases of Interest to the General Practitioner*.

May meeting was held in Carrollton, May 9, and was addressed by Dr. Justin Cardonier of East St. Louis. His subject was *Upper Urinary Tract Infections*.

James H. Hutton gave a talk on "Your Glands and What They do To You" before the North Central Kiwanis Club of Chicago, June 10.

Charles H. Phifer addressed the McLean County Medical Society June 10th, subject "Medical Economics with Special Reference to Indigent Care." He met with the St. Clair

County Medical Society on June 12th at which time he gave a paper on "Jaundice."

M. H. Streicher gave a talk on "The Business Man and His Stomach" before the Austin Kiwanis Club on June 19th.

Noah D. Fabricant and Mary Zeldes presented a program on "Health of the School Child" before the Parent Teacher Association of the Belding School on June 19th.

Jean McBean was invited to address a group of mothers on the subject of "Sex Education," June 16.

Samuel M. Feinberg was elected President-Elect of the American Association for the Study of Allergy at its Annual Meeting in Cleveland on June 2nd.

The Chicago Society of Industrial Medicine and Surgery elected the following officers at the May 20th meeting: President, Thomas C. Browning; Vice-President, Felix Jansey; Secretary-Treasurer, Frank P. Hammond.

Isabella C. Herb retired on June 7 from the staff of the Presbyterian Hospital and the faculty of Rush Medical College after nearly 32 years as head of the department on anesthetics in both institutions. Although retiring from active work in the hospital, Dr. Herb will continue in a consulting capacity as anesthetist emeritus.

The Illinois Psychiatric Society elected the following officers for the year 1941-42: President, Walter H. Baer; Vice-President, Paul L. Schroeder; Secretary-Treasurer, Eugene I. Falstein.

At the annual meeting of the Chicago Urological Society held May 16th, the following officers were elected: President, Norris J. Heckel; Vice-President, Charles G. Weller; Secretary-Treasurer, Irving J. Shapiro.

New officers — Chicago Society of Allergy President — Theodore L. Squier — Milwaukee, Wisconsin; President-Elect — Michael Zeller; Secretary-Treasurer — Theodore B. Berstein

Dr. Max Thorek will be guest lecturer at the University of Washington, Seattle, from the 14th to the 18th of July. He will deliver the following lectures: Problems in Appendicitis, Gallbladder Surgery, Intestinal Obstruction, Peptic Ulcer and Hernia.

Noah D. Fabricant, was recently the recipient of the Casselberry Award of the American Laryngological Association for 1941. The Cas-

selberry Award was presented to him at Atlantic City, May 29, 1941, for original and meritorious investigative work in the field of rhinology and laryngology. The prize-winning thesis "The pH Factor as a Basis for the Treatment of Upper Respiratory Infection," was the unanimous choice of the committee in camera. The writer, who is associate in otolaryngology at the University of Illinois College of Medicine, has been urged by the American Laryngological Association to continue his investigations so that at some later date he may be able to present further studies.

The following doctors attended the two weeks course in Obstetrics and Pediatrics at the University of Illinois College of Medicine during the winter of 1940-41

Doctor Geo. Callahan, Waukegan, Illinois
 Doctor Gerhard Eckmann, Herrin, Illinois
 Doctor Craig Ellyson, Waterloo, Iowa
 Doctor Paul Gannon, Pontiac, Illinois
 Doctor Horatio Greaves, Champaign, Illinois
 Doctor Lee Howard, Dieterich, Illinois
 Doctor Paul Reinertsen, Canton, Illinois
 Doctor K. H. Vandenburg, Taylorville, Ill.
 Doctor Henry C. Sauer, Fairbury, Illinois
 Doctor William Secker, Champaign, Illinois
 Doctor Harold E. Smith, Maywood, Illinois
 Doctor John Tidwell, Herrin, Illinois
 Doctor Wm. Wellstein, Geneseo, Illinois
 Doctor Sarah Wester, Mount Sterling, Illinois

The following doctors attended the summer course in Obstetrics and Pediatrics offered at the University of Illinois College of Medicine during the week of June 16, 1941:

Doctor M. T. Horsman, Salem, Illinois
 Doctor Edward Ross, Cabery, Illinois
 Doctor John O. Hoffman, Chester, Illinois
 Doctor Earle E. Wilson, Oak Park, Illinois
 Doctor Benjamin Chapman, Chicago, Illinois
 Doctor Jos. W. Walton, Homer, Illinois
 Doctor Sarah Wester, Mount Sterling, Illinois
 Doctor D. F. Ziegler, Chicago, Illinois
 Doctor H. Epsteinbach, Villa Park, Illinois
 Doctor Chas. M. Murrell, Sherrard, Illinois
 Doctor B. M. Brown, Streator, Illinois
 Doctor D. D. Raber, Bloomington, Illinois
 Doctor Ernst Cronheim, Chicago, Illinois
 Doctor Kenneth J. Weiler, Elmwood Park, Ill.
 Doctor J. G. Lamb, Cerro Gordo, Illinois

COMING MEETINGS

July 31 — Barry, Illinois, 12:30 P. M. — Pike-Calhoun County Medical Society.

September 12 — White Hall, Joint meeting of physicians and dentists of Greene County.

MARRIAGES

DR. MARCUS WHITMAN HEDGCOCK, Champaign, Ill., to Miss Erma Bissell of Chicago, February 19.

DR. D. D. MONROE, of Alton, was married to Miss Alberta Martin, the daughter of Mr. and Mrs. C. R. Martin of Godfrey, on June 1, 1941.

DEATHS

HARRY B. ANDREW, New Salem, Ill.; Missouri Medical College, St. Louis, 1896; aged 68; died, April 5.

THEODORE BACMEISTER, Chicago; University of Michigan Homeopathic Medical School, Ann Arbor, 1900; on the staffs of the Illinois Masonic Hospital, Ravenswood Hospital and the Belmont Hospital; aged 65; died, May 17, of coronary thrombosis.

GEORGE BASSETT BUTT, Chicago; Northwestern University Medical School, Chicago, 1900; member of the Illinois State Medical Society; aged 65; died, May 7, in St. Luke's Hospital of chronic nephritis.

BERTHA LAWTON CLINTON of Paris, Ill. Graduate N.W.U. 1899, aged 68. Staff of Paris Hospital where she died Feb. 11, 1941 of coronary occlusion.

ABRAM C. CLUTS, Prairie City, Ill.; Rush Medical College, Chicago, 1893; aged 73; died, March 31, in the Graham Hospital, Canton, of uremia and hypertrophy of the prostate.

GEORGE NOBLE COUCH, Latham, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; aged 65; died, April 7.

CHARLES OGDEN DORCHESTER, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1894; aged 80; died, April 27, of coronary occlusion.

WILLIAM FRANCIS DRYDEN, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; aged 69; died, March 29.

CHARLES HAROLD EYE, Chicago; University of Illinois College of Medicine, Chicago, 1925; aged 41; died, May 1, of chronic myocarditis.

DR. F. S. GRAY, long an outstanding citizen of Allendale and the county, died at his home May 26 at 9:30 o'clock.

Doctor Gray, who was about 87 years of age, came to Allendale as a young man and for years practiced medicine in the territory. Later he established a drug store and for many years had operated the business. He was honored by the Illinois Medical society here a few years ago for having been a member of the society for more than 50 years.

ELIJAH LEONARD HARDMAN, Allerton, Ill.; Western Reserve University Medical Department, Cleveland, 1891; aged 78; died, April 21, in the Carle Memorial Hospital, Urbana.

HOMER V. HICKMAN, Olney, Ill.; Barnes Medical College, St. Louis, 1901; aged 72; died, April 17, of bronchial asthma.

EDWARD WEST HOLLINGSWORTH, Chicago; University of Virginia Department of Medicine, Charlottesville, 1918; member of the Central Society for Clinical Research; fellow of the American College of Physicians; on the staff of the Veterans Administration Facility, Hines; aged 47; died, March 15, of coronary thrombosis.

CHARLES KAHN, Chicago; Northwestern University Medical School, Chicago, 1897; on the staff of the Englewood Hospital; aged 66; died, April 9, of coronary thrombosis.

EDWARD THOMAS KENNEDY, Chicago; College of Medicine and Surgery, Chicago, 1905; aged 61; died, April 11, in the Edgewater Hospital of pneumonia.

HORACE CHAUNCEY LYMAN, Chicago; University of Illinois College of Medicine, Chicago, 1915; fellow of the American College of Surgeons; served during the World War; on the staffs of the Edgewater Hospital and the Alexian Brothers Hospital, Chicago, and the West Suburban Hospital, Oak Park, Ill.; aged 48; died, April 13.

JOHN BENEDICT MASON, Chicago; Rush Medical College, Chicago, 1894; aged 71; died, May 11, of coronary thrombosis.

RALPH C. MATHENY, Galesburg, Ill.; Northwestern University Medical School, Chicago, 1891; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; consulting oculist, Galesburg Hospital; aged 82; died, April 18.

HENRY JAMES MILLSTONE, Chicago; Rush Medical College, Chicago, 1916; aged 48; died, April 17, of an overdose of a drug, self administered.

THOMAS WYNN MORGAN, Virden, Ill.; Rush Medical College, Chicago, 1900; served during the World War; aged 62; died, April 9, in the Barnes Hospital, St. Louis, of respiratory paralysis following a cranial operation for Ménière's disease.

JOSEPH J. NIMSCHIK, Chicago; Chicago College of Medicine and Surgery, 1914; aged 66; died, February 21.

ARTHUR JOHN OCHS, Oak Park, Ill.; Chicago College of Medicine and Surgery, 1915; member of the Illinois State Medical Society; aged 55; died, March 29.

HUGH PEAVLER, Mount Vernon, Ill.; University of Tennessee Medical Department, Nashville, 1885; aged 76; died, March 29, of valvular heart disease and arteriosclerosis.

DR. WALTER H. RIETZ 51 years old, of Peoria, Illinois died in St. Francis Hospital June 3rd. He received his B. S. degree at the University of Wisconsin in 1913 and was graduated from Rush Medical College in 1915.

GAETANO RONGA, Chicago (licensed in Illinois in 1899) aged 66; died, April 6.

ROBERT GARFIELD SAVAGE, River Forest, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; member of the Illinois State Medical Society; fellow of the American College of Surgeons; formerly assistant clinical professor of obstetrics at the Loyola University School of Medicine, Chicago; for many years on the staff of the Oak Park (Ill.) Hospital; aged 59; died, May 7.

JOHN PAUL STAWICKI, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; aged 61; died, April 18.

MARION MARGARET WALLACE, Chicago; University of Illinois College of Medicine, Chicago, 1934; aged 53; died, April 15, in the Women and Children's Hospital of cerebral hemorrhage and hypertensive cardiovascular renal disease.

MERRITT OWEN WILKINS, Chicago; the General Medical College, Chicago, 1924; served during the World War; on the staff of the Illinois Masonic Hospital; aged 51; died, April 6, of coronary thrombosis and hypertension.

RESOLUTIONS ON THE DEATH OF

DR. JAMES W. WEIR: —

There comes a time in the lives of men when the inevitable call must be answered. The greatest void is left by those valient few who, like Dr. James Weir pioneered. As it must come some time to all men, death came on March 2, 1941, to Dr. James W. Weir, long a prominent and influential physician of Sparta, Illinois. He leaves behind two prominent sons.

Dr. James Wallace Weir was born in 1850 near Schulline, Illinois and after his preliminary education he entered the Missouri Medical College in St. Louis and graduated in the Class of 1882.

He was known amongst us for his diligent attention to his work, his unfailing courtesy and his personal charm expressed in the manner of a typical Illinois gentleman.

Wholly without ostentation he gave generously of his time and often of his purse to the sick and needy. As we review this brief sketch of his life, we are moved as follows:

BE IT RESOLVED, that the Randolph County Medical Society in regular session assembled, hereby records its sorrow in the death of this fellow member, and that this resolution be spread on the minutes of the Society and a copy be sent to his family and to the Illinois Medical Journal.

Committee: J. C. Sutherland, M.D.
C. O. Boynton, M.D.
N. F. Roberson, M.D.

Regularly approved and passed by the Randolph County Medical Society at its June 5, 1941 Meeting.

President, R. E. Schettler, M.D.
Secretary, W. W. Fullerton, M.D.

"GOAT GLAND" BRINKLEY BANKRUPT

John R. Brinkley, the transplanted Kansas "goat gland" specialist on the Mexican border, recently was on record as a bankrupt.

He listed obligations "in excess" of his \$30,000 assets in a voluntary petition accepted by R. O. Huff, referee in bankruptcy.

The creditors will meet next week in Del Rio, across from which, at Villa Acuna, Mexico, is XER, the super radio station which advertised Brinkley's hospitals at Del Rio and Little Rock, Arkansas.

Brinkley's fabulous career included politics and radio selling that were unique in his heyday. Twice, in 1930 and in 1932, he ran for governor of Kansas and each time almost was elected. He talked about running for the senate.

From his first so-called goat gland operation in 1917, Brinkley built up a \$30,000 a week operations business at his Milford, Kansas, hospital.

With his radio station KFKB there he urged hundreds of aged to seek treatment. Kansas deprived him of his license to practice medicine and his treatment was heavily attacked.

But he claimed he was being "persecuted," and called for more votes and patients.

He sued the Kansas City *Star* for \$5,000,000 libel but failed to collect. The Amarillo *News-Globe* and the American Medical Association were parties to his suit.

When the federal communication commission revoked his radio license he established XER at 100,000 watts, stepping it up in 1931 to a reported 500,000 watts.—Los Angeles *News*.

"In many countries the introduction of socialized medicine has been the forerunner of religious intolerance, the suppression of free speech and the press, and the further development of centralized governments.

"While our physicians and the church and community hospitals are developing methods and facilities to provide good medical care for those unable to pay and for those in low-income groups, the government is still collecting hidden taxes on the toast they eat, the braces they wear, and the medicine needed for their recovery. . . .

"The science of health is far in advance of the science of government, but medicine and government are not incompatible if used in the right proportions." —Dr. Charles H. Henninger, quoted in the St. Louis County Medical Society *Bulletin*.

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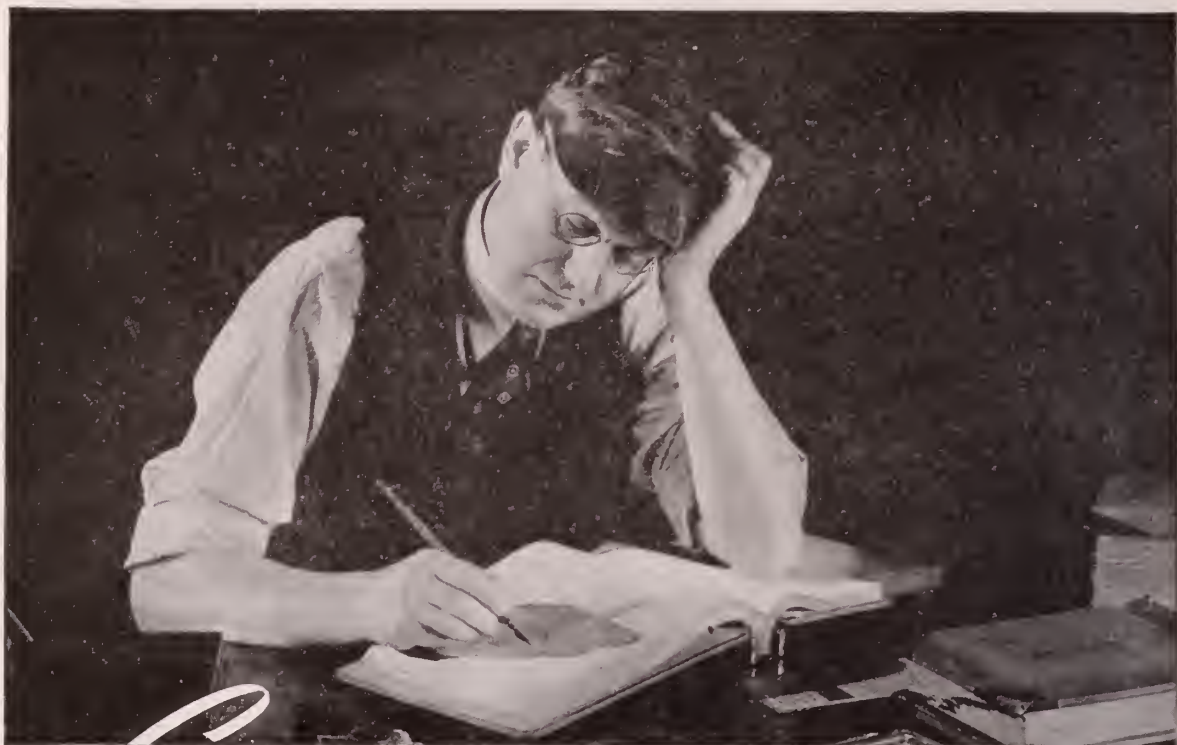


IT is interesting to note that a fair average of the length of time an infant receives Dextri-Maltose is five months: That these five months are the most critical of the baby's life: That the difference in cost to the mother between Dextri-Maltose and common sugars is about \$7 for this entire period—a few cents a day: That, in the end, it costs the mother less to employ regular medical attendance for her baby than to attempt to do her own feeding, which in numerous cases leads to a seriously sick baby eventually requiring the most costly medical attendance.

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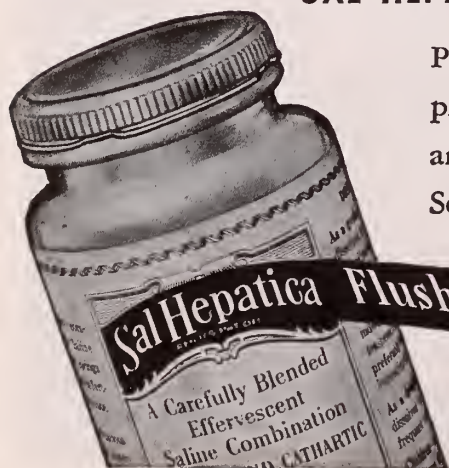
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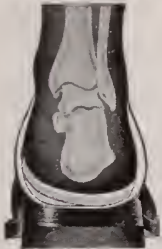


Typical ankle pronation, associated with flattening of the longitudinal arch and pain upon walking and prolonged standing.



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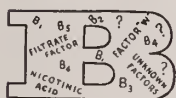
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SAYS NEW TREATMENT EFFECTIVE FOR SPRAINS AND PULLED MUSCLES

Surface Anesthesia, Followed Immediately By Active Motion, Produces Amazing Results, New York Physician Says

By application of surface anesthesia, followed immediately by active motion, such conditions of impaired function due to pain as sprains and pulled muscles can be so treated that immediate normal use of the affected part can be allowed in a majority of cases, Hans Kraus, M.D., New York, reports in *The Journal of the American Medical Association* for June 7.

"The considerable shortening of the period of treatment and the early rehabilitation with restoration of normal function make it desirable that this treatment should find general application," Dr. Kraus says. "This is true especially in athletic injuries and injuries occurring to laborers and to those in the military service."

Regarding the technic, the author says that "The painful region must be determined through active motion. The direction in which the motion is impaired is first determined. Then ethyl chloride is sprayed on this area of skin. The patient then starts careful active motion of the part involved, in the direction in which the motion has been painful and limited. As the patient carefully increases the movement, new painful areas — which up to this point have been hidden through blocked motion — will develop. Those areas again have to be sprayed and active motion continued.

"These treatments last from ten to thirty minutes and should be performed carefully and well within the limits of pain. Immediately after the treatment, camphor liniment should be applied to the skin, to avoid frostbite.

"Immediate normal use of the affected part can be allowed in a majority of cases, but excessive strain and sudden movement should be prohibited. Patients with more severe disorders should be given a rest, but all patients should be advised to continue the active movements taught them — from twice a day to once every hour — for approximately five minutes. While a single treatment will be sufficient in cases of minor involvement, patients with more severe involvement will have to be treated several times: the first week, daily — later, every other day.

"An effective treatment, however, should not call for the anesthetic after the second week, whereas active motion will have to continue until normal muscular power is restored.

"Immobilization after treatment is contrary to the basic principle and should, therefore, never be combined with it."

Explaining that experiences recently gained at the Presbyterian Hospital in New York have confirmed previous observations of the effectiveness of the method of treatment, Dr. Kraus says that "Though further

research will be necessary for final conclusions, the following groups of cases are considered suitable for treatment by surface anesthesia and active motion, if major disturbance of the normal anatomy, such as fractures or a complete tearing of ligaments, muscles or tendons of the affected region are absent: (1) sprains of all joints; (2) acute muscular spasm due to lumbago, acute bursitis [inflammation of the bursa or sac surrounding a joint] of the shoulder, pulled muscles, and so on, and (3) chronic muscular spasm due to 'low back pain,' sciatica, chronic osteoarthritis [inflammation of the bones and joints], shoulder spasm and the like.

"The common symptom treated in these conditions is limitation of motion through pain and subsequent spasm. Major changes in anatomy, such as fractures or tears of soft parts, are treated by the usual surgical methods. Whenever treatment with ethyl chloride spray gives a negative result, it will be necessary to look for major changes in the anatomy. Thus this technic may be used as a means of evaluating diagnosis in cases of impaired function."

That this method of treatment is one that should not be attempted by laymen is indicated in the warning by Dr. Kraus of the risks involved in the method.

"Excessive use of ethyl chloride spray," he says, "may result in frostbite of the skin. To prevent this, camphor liniment or other counterirritants should always be used. I have used a spray composed of ethyl chloride with camphor liniment and compounds of ethyl chloride with various oils with good success. These oils, mixed with the ethyl chloride and thus used in proportion, provide an immediate antidote against irritation of the skin. . . .

"Active motion, though absolutely necessary, should never be used brusquely or abruptly, in order to avoid injuries to the spastic muscles, which would obviate the effect of the exercise. As previously emphasized, normal anatomy must be present if this treatment is to be used effectively. Whenever this point is neglected, treatment with ethyl chloride either has no effect or, as with any other treatment when wrongly applied, will cause damage.

"In acute attacks the effect of the treatment is amazing. Patients who have been disabled by acute sprains or acute muscular spasm often regain the full use of the affected parts immediately. The pain frequently does not recur in cases of minor involvement and rarely recurs in full intensity in those of more serious involvement. Two to four treatments usually suffice to bring about, even in more serious cases, a minimum degree of discomfort. Thus, in all cases the period of disability is reduced drastically. Atrophy of the muscles involved does not develop to the same degree as when immobilization is employed. Swelling is more readily absorbed. Patients treated by this method are less apt to sustain the same injury again than those treated by immobilization. The same holds true for chronic and 'rheumatic' conditions, although a longer period of treatment is usually required in those cases."—*Journal of the American Medical Association*.



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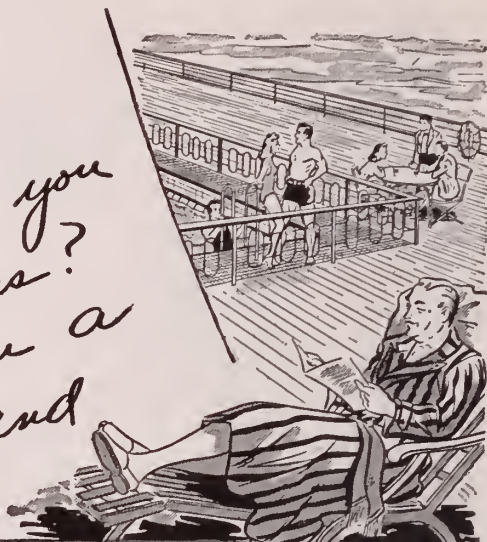
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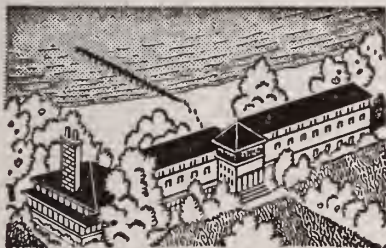
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PNEUMONIA IS CONTAGIOUS

Additional evidence that pneumonia is a contagious disease and that all patients with it should be strictly isolated, even during convalescence, is presented in *The Journal of the American Medical Association* for June 7 by Sydney S. Gellis, M.D., and A. Graeme Mitchell, M.D., Cincinnati.

"Nine instances of cross infection with type I pneumococcus occurred in November and December of 1939 during a period of two weeks in the pediatric [disease of children] service of the Cincinnati General Hospital," the two physicians say. "All the children, with one exception, were between the ages of 2 and 3 years."

Crowded living conditions, mounting prices of necessities, increased mental, emotional and physical strain — inevitable by-products of industrial defense activities — are factors dangerously favorable to the increase and spread of tuberculosis.—Kendall Emerson, M.D., *Ohio State Medical Journal*.

The organized medical profession has suffered more from poor publicity than from any other single factor.—*The New York Medical Week*.

It is only in an atmosphere of freedom that the lamp of science and learning can be kept alight.—Raymond B. Fosdick, *Rockefeller Institute*.

CORONARY OCCLUSION

Give $\frac{1}{4}$ or $\frac{1}{2}$ gr. of morphine promptly and repeat in 1 hour or less if pain persists, and do not move the patient from the place of attack if it can be avoided. If there is fibrillation give quinidine, and if severe give it intravenously in large doses. When a rapid ventricular rate persists or if signs of congestive heart failure supervene, give digitalis by mouth or intravenously. Aminophyllin, $1\frac{1}{2}$ gr. four times a day, probably increases the coronary circulation. Fifty cubic centimeters of a 50% solution of glucose may be administered slowly into the vein once or twice a day and often checks nausea and vomiting as well as having a nutritive, stimulating and diuretic effect. Adrenalin is of value in some heart block cases and when pulmonary edema occurs. After 24 to 48 hours mild laxatives or a soapsuds enema may be necessary. All cases require at least 6 weeks in bed and some much longer. Exercise is increased slowly after the period of absolute bed rest. Permanent sub-par activity should be advised.—*Jour. M. A. S. A.*

CRIMINAL ASPECTS OF FAITH HEALING

To most citizens it is a novel idea that faith healing has criminal aspects, yet if one remembers the saying of a distinguished historian that "liberty, next to religion, has been the motive for good deeds and a common pretext for crime," one should not be surprised that even the practice of faith healing may on occasion violate the law of the land. As the author of an article points out, the government interferes, not with religious opinions, but with the acts of individuals, it discriminates among acts expressive of religious belief, no matter how logically or illogically they may be derived from the belief, and decides that some are in violation of the law and that others are not.

It is clearly within the rights of a community to protect itself from a communicable disease in any way approved by the best scientific opinion, whether by mere restraint or isolation or by specific treatment, according to the nature of the disease and the risk of transmission from the patient to other persons. If the disease is noncommunicable and occurs in an adult of sound mind, it is generally, if not always, agreed that it is for the patient to decide whether medical advice shall be sought, and if sought, whether it shall be followed. It is in the case of noncommunicable disease occurring in the legal "infant" that controversy has been most violent. Yet here also the decisions of the courts are clear; any person who has the custody of a child is under a duty to supply the "necessaries of life, medical attention . . . included."—*N. E. J. of Med.*

Every malpractice action undermines the confidence of the public in all physicians, and it is said that a dozen new suits are commenced based upon the publicity of a new case. You are your brother's keeper in maintaining a justified public confidence. Let no improper act of yours lead to a betrayal of that trust.

—*Wisconsin Medical Journal*.



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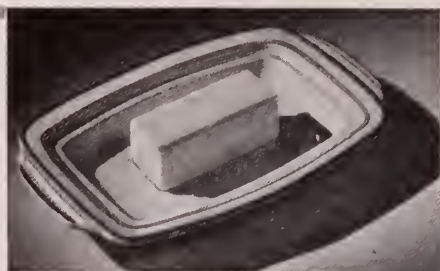
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NEW PORTABLE TRANSFUSION KIT ANNOUNCED IN A. M. A. JOURNAL

An Emergency Apparatus For Administering Blood Plasma To Both Civilian and War Casualties, Developed by Three Men

A new portable emergency dried plasma (the liquid portion of the blood) transfusion kit that can be set up and used at or near the site where the injury occurs, is described in *The Journal of the American Medical Association* for June 21 by John R. Upton, M.D.; B. E. Emery, M.S., and R. B. Clark, San Francisco.

"In these grim days," the authors say, "the need for some foolproof dependable transfusion outfit which can be set up by any doctor or well trained nurse and utilized at or near the site where the injury occurs is of tremendous importance. Army, navy, air force and even civilian casualties now can be treated immediately by drawing on supplies in strategically placed depots. Experience in the present war has already shown the urgent need for plasma transfusion in shock, burns and hemorrhage. If transfusion is delayed, inevitable and irreversible changes occur in a large proportion of cases."

The kit contains the residue from 250 cc. of liquid plasma, which, on reconstruction with sterile water, would be equivalent to 250 cc. of "wet" plasma or 500 cc. of whole blood. The dry plasma is contained in a 500 cc. vaccine sleeve type rubber stoppered bottle which is hermetically sealed in a snug fitting tin can. Cotton wool is tamped snugly about the base and neck. The tin can is $3\frac{1}{2}$ inches in diameter and 8 inches tall.

There is a 500 cc. calibrated dispenser bottle of sterile water which is fitted with the new type sterile cap which ensures sterility after bottling and prevents contamination during administration. The authors explain that the sterile water is contained in the kit because of the fact that water is extremely difficult to sterilize and equally hard to keep sterile.

Also contained in the kit are an intravenous needle (for injection into a vein), a rubber tubing of Y design, a mechanical filter and drip chamber and a needle attached to the other short arm of the Y tube. This is packed in a sterile manner with the needles being protected by inclosure in a test tube. This segment is united, sterile and ready to use. There also is contained in the kit a spinal type needle with stylet in a sterile test tube.

Explaining the method of administration, the authors say: "The corrugated cardboard container is slit open with a knife along the designated line. The contents are removed and, if no table is available, the cardboard box can be up-ended and used for a table. Any improvised stand can be used to suspend the bottles; on board ship or in a hospital ward these are always available. If no such stand is available because of an exposed position, use can be made of a sapling, a

tent stake or even a gun-stock with the bayonet stuck firmly into the ground. The rate of flow can be accurately gaged by the turn-screw petcock, so that the height of the object used to suspend the bottles plays little role except for support. The tin can is carefully opened by the usual type of can opener, but care is needed to make sure the can is opened at the designated end to avoid damage to the glass bottle."

When the patient has been made ready for the transfusion the needle attached to the short arm of the Y tube is inserted just through the stopper into the powder plasma flask and the glass nozzle at the other end of the Y tube is inserted through a designated hole in the rubber cap of the sterile water bottle. The spinal type needle is then inserted alongside the needle already piercing the rubber stopper of the dry plasma flask. This needle is to brake the vacuum in the bottle during the reconstruction process. The tube running into the recipient's needle is clamped off with the screw-cock and the bottle containing the sterile water is up-ended so that its contents flow into the bottle containing the dry plasma. The dry plasma or serum will dissolve in a few seconds. When the plasma is completely dissolved both bottles are up-ended and some water is allowed to run through the tubing and the air bubbles therein are eliminated by raising and lowering both bottles several times. The apparatus is then ready for the transfusion.

Discussing the kit the three men say that "It will adequately meet conditions imposed on it by modern warfare. It will fill a long standing need in civilian life and practice; smaller hospitals, emergency stations, fire houses, industrial factories, oil refineries and forestry outposts should keep such a kit or kits in their emergency lockers. Armed forces ashore and afloat will require large numbers of these or similar kits. They will enable transfusion therapy (treatment) to be moved to more advanced positions in actual warfare; smaller vessels will have transfusion facilities for their wounded. Gun flash, explosion and incendiary bomb burns will now be treated in the first critical hours.

"The financial cost of these kits is small when the life saving properties are considered. The federal government may find it advisable to produce and dispense such units. Our civilian population must realize that its part in the national preparedness program will be to supply blood voluntarily for national defense needs; this is the least it can do to pay for its protection. Such a widespread program would guarantee a constant and adequate supply of dried blood plasma."

To win public admiration for our scientific skills is not enough; we must also win respect as citizens. If we ignore the welfare and cultural activities of the community, we brand ourselves as civically irresponsible medical mechanics.—*Journal of Medical Society of New Jersey.*

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SEASON FOR IVY AND SUMAC POISONING

Both ivy and sumac poisoning occur most frequently during the spring and summer, when the sap is running in the plants.

Prevention

The poison from these plants is found in the juice which they exude when wounded. The only known way in which a person may be affected by the poison is through direct contact with this juice, either as a result of touching the plants or of touching other materials (clothing, shoes, tools, and so on) on which the sticky juice has been deposited.

To avoid poisoning, the most obvious requirements are an ability to recognize the plants themselves, and the avoidance of coming in contact either with the plants or with anything that has touched them. Contaminated articles should be thoroughly scrubbed with soapsuds.

Poison ivy (sometimes called poison oak, poison vine, threaleaved ivy, or poison creeper) grows as a woody perennial vine, a low erect bush, or a trailing shrub. The leaves are always divided into three leaflets, usually with notched and indented margins. They are dark green on the upper surface and lighter underneath. In the fall they may turn brilliant shades of red or orange.

Poison sumac (also known as poison ash, poison dogwood, poison elder, or thunderwood) is a bush or tree whose trunk and older branches have a smooth grayish bark, while the young branches are reddish brown. The leaves are divided into from 7 to 13 long oval-shaped leaflets, which first unfold in a bright orange hue with a velvety surface, then become dark glossy green in the summer, and turn to brilliant russet shades in the fall.

Eradication of the sumac may be accomplished by cutting the stems during the winter months. Poison ivy eradication is more difficult because of the underground stems and because any spray which kills the ivy will also kill other vegetation. However, the spray is perhaps the most practicable method. A strong brine is recommended (3 pounds of salt to a gallon of water) as being cheaper than the effective arsenical weed killers on the market.

The U. S. Public Health Service has developed an oxidant cream, containing 10 per cent sodium perborate, which appears to be a useful aid in preventing both ivy and sumac poisoning. The cream is rubbed into the skin before exposure to the plants and is allowed to remain on the skin during exposure. It must, however, be washed off with soap and water and renewed every 4 hours.

Whenever it is suspected that anyone has touched the poisonous plants, the exposed parts of that person's body should be washed with coal oil, rubbing alcohol, or gasoline, taking due precautions against fire. When this is done, it should be followed by a thorough scrubbing with alkaline soap and water, using a brush. No creams or ointments should be used, as these are apt to spread the poison.

Treatment

Although death has occurred in some instances dur-

ing a severe attack of ivy poisoning, it is not generally believed that fatalities from ivy poisoning alone are very likely to occur. Experiments performed in the past at Harvard Medical School have shown, however, that in rabbits the poison may cause death from inflammation of the kidneys (Bright's disease). In order to avoid the continued spread of the poisoning in an affected human being, therefore, *it is always advisable to seek the advice of a physician.*

Among the treatments which physicians have commonly recommended in the past are solutions in water of sodium sulphite, dextrose, magnesium sulphate, picric acid or permanganate of potash.

As a result of experimental treatments given to a limited number of persons at the close of the 1940 season, the U. S. Public Service has suggested that physicians give tannic acid a trial in order to confirm or disprove its value for patients suffering from either ivy or sumac poisoning. Nonprofessional persons are particularly warned *not* to experiment with this new treatment, but the reports state that under medical supervision it was unusually effective. A 10 per cent solution of tannic acid in water was applied to the ivy inflammation after the affected area had been cleansed with alcohol. Itching and discomfort stopped within one or two days after the treatment was instituted, and all symptoms are said to have disappeared at the end of a week.—*Illinois Health Messenger, June 15, 1941.*

"The medical profession is not a trade union and is not especially concerned with the hours or place of work. It does not build trusts or monopolies, excludes no qualified competitors and does not retain any worth-while discoveries for its own profit. It does not specifically engage in political activities and calls no strikes. It answers calls from the storm and wind-swept country, the streets of the village, the boulevards of the city, and the desolate fields of battle. It demands that each physician meet the standards which equip him to render good medical care."—R. B. Poling, M. D., president of the Mahoning County (New York) Medical Society, in the February issue of that society's *Bulletin*.

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DR. LAHEY ADDRESSES THE "TOWN HALL" AUDIENCE

In a plea to let American Medicine work out its own problems without interference, Dr. Frank Lahey, President-Elect of the American Medical Association, helped The Medical Society of New Jersey celebrate its 175th anniversary on March 24 in an address at the Town Hall in Newark. Speaking to 4,000 citizens who filled the Mosque Theatre, Dr. Lahey reminded the audience that life-saving, disease-controlling discoveries had marked the history of medicine in America, and had given the United States the finest medical facilities and medical care in the world. Death rates have been reduced, epidemics wiped out, the average life span prolonged. All these, Dr. Lahey pointed out, were the fruit of the individualized system of medical practice which has characterized the American Way. By contrast, governmentally controlled medicine, as seen in many European countries, has resulted in a conspicuous deterioration of medical service. Dr. Lahey warned against methods of distributing medical care based on the assumption that medical service was a commodity that could be handed out en masse on a cost-plus basis.

The structure of the American Medical Association was described, and its role in maintaining high standards in hospitals and medical schools, was emphasized. The chaotic condition that would result if there were no Medical Association was called to the attention of the audience. Dr. Lahey corrected the popular but unfounded belief that the A.M.A. was hostile to experiments in Group Medicine, stressing the fact that Organized Medicine welcomes such experiments provided only that changes were made cautiously rather than radically, that the insurance plans were supervised by responsible state officials, and that there be no impairment of the patient's freedom to choose his own doctor.

Dr. Lahey devoted a few minutes to a delightful account of recent progress in vitamin medication, chemotherapy, and endocrine surgery. At the conclusion of his talk, the audience, in the traditional Town Hall manner, submitted queries to the speaker. In response, Dr. Lahey indicated that he favored passage of the Murray Bill to defer the conscription of medical students. He felt that competition among

physicians was a wholesome stimulant to medical progress, and was doubtful if the placing of doctors on a salary would improve medical care. He stated that many apparent defects in the distribution of medical service were really defects in the distribution of such essentials as food, clothing and housing.

Dr. Watson B. Morris, President of The Medical Society of New Jersey, was chairman of the Forum, and Dr. Charles M. Robbins, Public Relations Committee Chairman, presided over the question-and-answer period.—*Medical Journal of State of New Jersey*.

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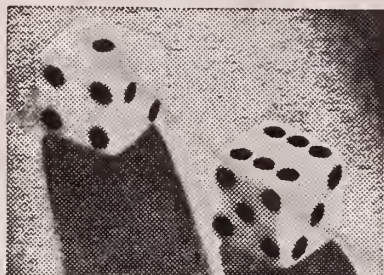
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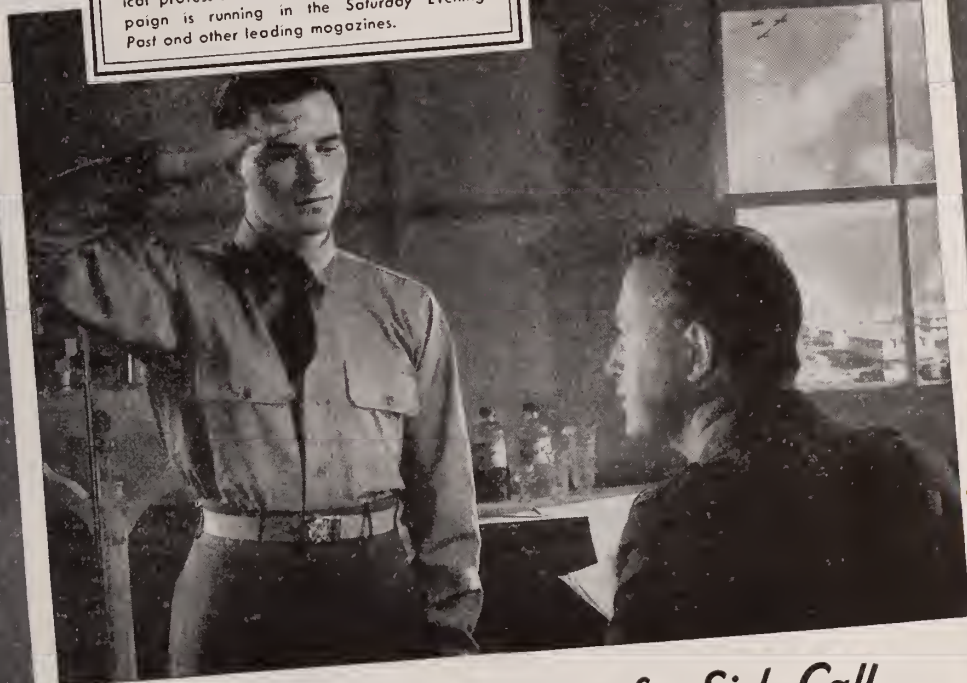
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*S-M-A, a trade mark of S.M.A. Corporation, for its brand of food especially prepared for infant feeding—derived from tuberculin-tested cow's milk, the fat of which is replaced by animal and vegetable fats, including biologically tested cod liver oil; with the addition of milk sugar and potassium chloride; altogether forming an antirachitic food. When diluted according to directions, it is essentially similar to human milk in percentages of protein, fat, carbohydrate and ash, in chemical constants of the fat and physical properties.



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Water.....10 ozs.
Karo syrup.....2 tbs.
3 ozs. every 4 hrs.—6 feedings

AGE—ONE MONTH

Milk.....12 ozs.
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Karo syrup.....2½ tbs.
4 ozs. every 4 hrs.—6 feedings

AGE—TWO MONTHS

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Milk.....17 ozs.
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Karo syrup.....3 tbs.
5 ozs. every 4 hrs.—5 feedings

AGE—FOUR MONTHS

Milk.....20 ozs.
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Karo syrup.....3½ tbs.
6 ozs. every 4 hrs.—5 feedings

AGE—FIVE MONTHS

Milk.....23 ozs.
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Karo syrup.....4 tbs.
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AGE—SIX MONTHS

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A FORMULA of whole cow's milk, carbohydrate and water may be calculated for the individual infant according to the following requisites:

- (1) The amount of cow's milk necessary will be 1.5 to 2.0 ounces per pound (100 to 130 cc per kilo) of expected body weight per day; or, one-half to two-thirds of the total calories required for the infant.
- (2) The amount of added Karo syrup required will be about one-tenth of the quantity of milk used, i.e., 0.15 to 0.2 ounces per pound (0.1 to 1.13 grams per kilo) of expected body weight per day, or one-third to one-half the total calories required for the infant.
- (3) The total caloric value of the formula should be approximately 50 to 55 calories per pound (110 to 115 calories per kilo) of body weight per day.
- (4) The amount of water added to the formula will be two to three ounces per pound (130 to 200 cc per kilo) of body weight per day; and the amount of water added to the formula for the 24-hour period depends upon the degree of dilution required to render the mixture digestible.
- (5) The amount of formula offered at a feeding during the first few months is expressed by the rule—Age in months plus two ounces at four-hour intervals."

KUGELMASS: "Newer Nutrition in Pediatric Practice." 1940.

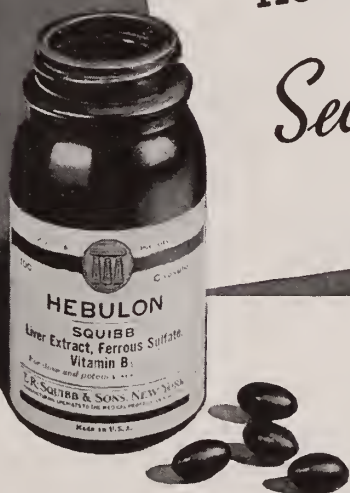
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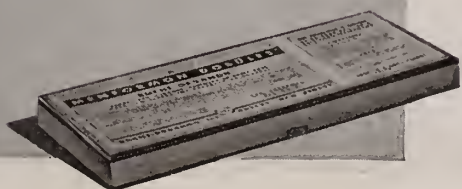


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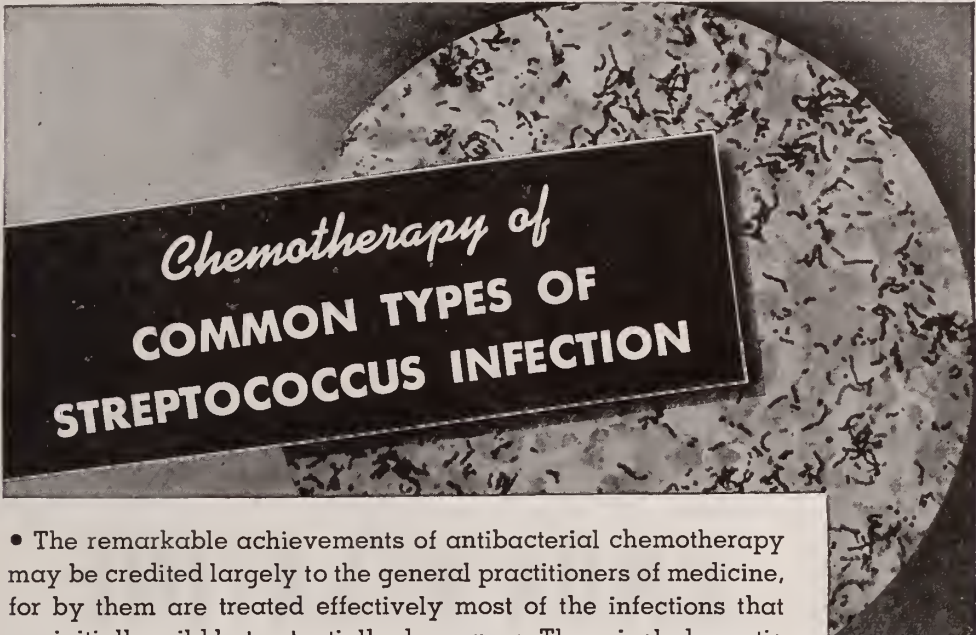
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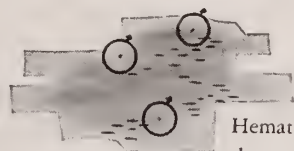
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The Illinois Medical Journal

August 1944

VOL. 80, NO. 2

Official Journal of the Illinois State Medical Society

EDITOR — Harold M. Camp. EDITORIAL BOARD — James H. Hutton, Chairman, Frederick H. Falls, Josiah J. Moore, Edwin M. Miller, Chauncey C. Maher, Harry S. Gradle, Philip H. Kreuscher, Harry Culver.

Editorials

MEET THE EDITORIAL BOARD

The Council of the Illinois State Medical Society, being responsible for the publication of the Illinois Medical Journal, has selected an Editorial Board which has been charged with definite duties. The Board will begin to function immediately.

In the future this Journal will refrain from the publication of editorials on controversial subjects, and will limit this department principally to the publication of timely scientific editorials.

The medical economics department will be continued as in the past. In addition to the consideration of the usual important and ever increasing subjects coming under this classification, we will devote some space to reports on medical preparedness and the role of medicine in our national defense. We will also include other reports which will be of interest to the many readers of the Illinois Medical Journal.

The members of our Editorial Board were selected carefully in an endeavor to have members of several specialties, and it was deemed advisable to limit the personnel of the Board to eight members.

THE EDITORIAL BOARD

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Harry S. Gradle, 58 East Washington Street, Chicago

Philip H. Kreuscher, 208 South La Salle Street, Chicago

Harry Culver, 7 West Madison Street, Chicago

The Editorial Board will assume responsibility for the development of scientific editorials which will appear regularly in this Journal. They will aid in the selection of papers for publication and in solving various problems arising in connection with the editing and publishing of a medical journal.

It is the earnest desire of the Council of the Illinois State Medical Society, its Journal Committee, its Editorial Board, and the Editor, to make the Illinois Medical Journal more popular and of greater value to the members of the Society.

Suggestions, criticisms and comments will be appreciated by all those responsible for the preparation and publication of the Journal, and all will be given a most careful consideration.

POST GRADUATE EXTENSION SERVICE

The civilized world in general, and this country specifically, has in the past few decades travelled fast and far in its attitude towards post graduate training. Less than thirty years

ago Dr. James B. Herrick — appearing before an annual session of the American Medical Association decried the lack of hospital facilities for internship. He deplored the fact that only a minor percentage of graduates from our medical schools could be afforded this additional instruction. How far we have gone in the past three decades to substantiate Doctor Herrick's judgment!

Internship is a pre-requisite to the right to practice in many of our states. A one year internship has been found inadequate to encompass the rapidly gathering and shifting medical lore. The one year residency has proven so practical and so important that the specializing boards are demanding it as a requisite for certification in internal medicine, surgery, and many of the specialties.

One year residencies have given way to a second year or Senior Residencies, leading to a Master's or Doctor's degree in a chosen specialty. So much for Intra-Mural or Pre-Practice Post Graduate Extension. Let us now consider what has been done and what is being planned in the

way of carrying the torch to the practicing physician.

Many states in the United States appreciating the importance and necessity of carrying Post Graduate Education to its far flung professional members, through the medium of their County Medical Societies, have well organized and functioning Post Graduate Committees. The individual plans of these various State Medical Societies differ rather widely, but they converge to a common principle of carrying scientific information to their members in ever increasing volume.

The Illinois Plan — The Illinois State Medical Society is a pioneer in this important work of Post Graduate Extension. Nineteen years ago the House of Delegates authorized the formation of an Educational Committee whose sole function was "To carry medical information to the lay public through the medium of a lay speakers bureau, the press and the radio and to convey scientific information to the medical profession through lectures before the widely scattered county medical societies." Four years later,

ILLINOIS STATE MEDICAL SOCIETY

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Society members will pay no bills for legal services except those contracted by the Committee. Notify the Chairman at once. Do not employ attorneys.

Send advertising copy, cuts and all communications relating to advertising to ILLINOIS MEDICAL JOURNAL, 30 N. Michigan Avenue, Chicago.

Original articles and membership correspondence to Dr. Harold M. Camp, Monmouth, Ill.

Society proceedings and news items and changes in the mailing list to Managing Editor, 30 N. Michigan Ave., Chicago.

Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is \$3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. \$4.00 per year for all foreign countries included in the postal union. Canada, \$3.50. Single current copies, 50 cents.

or fifteen years ago, it was realized that the Scientific Servicing of county societies was of itself so vast and technical an adventure that it could be more creditably handled by a separate committee, working under the direction of the parent committee and so in 1926 the Scientific Service Committee was born.

This Scientific Service Committee which has had as its sole function the servicing of the 101 County Medical Societies with scientific programs has grown and expanded its field of usefulness from year to year. Whereas in the first year of its existence it boasted of a speakers personnel of fifty and arranged programs for thirty county societies, its records show that at present it has accumulated more than four hundred speakers, lecturers, and clinicians gathered not only from the teaching institutions of Chicago, but from the smaller county medical societies as well. This list of speakers and their subjects are all classified and published in book form and a copy is in the possession of every county secretary and every county president, thus rendering it very simple to arrange for an entire season of scientific meetings in advance, and at no cost to the County Societies. The State Medical Society, through a special budget, pays all the expenses, including the travel overhead of its speakers.

Two years ago the House of Delegates of the Illinois State Medical authorized the creation of still another committee to be known as "The Post Graduate Education Committee." The function of this committee was to study the broad problem of Post Graduate Medical Extension and after this survey to assist the Scientific Service Committee in enlarging its scope. This has led to a very important innovation in Post Graduate training. Specifically it has resulted in the institution of Post Graduate Conferences. The idea was originally plagiarized from the Texas State Medical Society which has been conducting a Three Day Annual Clinical Conference. It was deemed more practical in Illinois to attempt instead more conferences but of briefer (one day) duration. Four such Conference Days held the first year proved ultimately successful and led to nine the next year. The plans for the current year call for ten one day conferences held in various sections of the state. They operate as follows — beginning with a luncheon,

three forty-five minute lectures on subjects previously chosen are followed by a Round Table discussion. Instead of one lecture, a clinic with the demonstration of patients has been found practical and interesting. At the dinner meeting at night, two outstanding speakers, and preferably one of a non-professional subject, complete the day.

In the interest of Public Relations it is both practical and advisable to inform the lay public of these conferences, either by inviting them to the evening meeting or by broadcasting over the radio selected portions of the programs.

And so as Time Marches On and the wheels of progress turn ever faster, and the mill grinds out in constantly increasing volume, let us in the profession who can, help separate the wheat from the chaff and by so doing lighten the load of those of our brethren who toil in the far flung sections of our state.

CLINICAL-PATHOLOGICAL CONFERENCE CASE REPORTS

With this issue of the Illinois Medical Journal, the reader will find some interesting Clinical-Pathological case reports which have been selected carefully, edited by the pathologist member of the Editorial Board, and published for the benefit of the readers of the Journal.

Under a new heading, these reports will be published regularly in the Journal. It is the desire of the Editorial Board and of the Editor, to make this a popular feature, in keeping with the general desire to improve in every way possible, the Illinois Medical Journal.

Every member of the Illinois Pathological Society has received a letter asking him to submit interesting case reports with pathological findings. These are to be sent to the pathologist on the Editorial Board who will assume responsibility for selecting the reports for each issue of the Journal.

Dr. Josiah J. Moore who is responsible for this department, will appreciate receiving case reports from conferences held anywhere in Illinois. This material may be sent to him at 55 East Washington Street, Chicago.

The doctors in forty-one of Michigan's eighty-three counties are refusing to take the low fees the state offers for treating indigent patients and are giving their services gratis.

QUESTION AND ANSWER DEPARTMENT

At the request of many members of the Illinois State Medical Society it has been decided that a new department will be created in the Illinois Medical Journal to be known as "The Question and Answer Department." This department is being developed to give physicians who read the Journal the opportunity to submit their questions, short case reports, or ask questions pertaining to the diagnosis or care of the patient with some unusual type of condition.

The questions should be sent to the editor, and will be referred to the Editorial Board for reply. The more interesting queries will be published in the Journal with the comments of the physician to whom it has been referred for answer. It is quite probable that this department will first appear in the September Journal, and physicians desiring to submit questions may do so during the next month, and at any time thereafter. When it seems advisable, a report will be sent by mail to save time, then the questions and answers will be published in the next issue of the Illinois Medical Journal.

In Memoriam

JOHN ROSS NEAL, M.D., Ph.G.

On July 1, 1941 shortly before midnight, death again struck among the ranks of the outstanding members of the Illinois State Medical Society, taking a physician known to the entire medical profession of Illinois for his untiring and ceaseless efforts to aid this profession which he loved so well.

John Ross Neal, a native of Illinois, spent most of his life in Springfield, but died at Grant Hospital, Chicago, after an illness of some three weeks following a coronary thrombosis.

For several years as a registered pharmacist, he owned and operated a drug store in Springfield. In 1909 he was graduated from Northwestern University Medical School in Chicago, and after taking an internship, decided to practice in his home city of Springfield where he was associated with the late Dr. George N. Kreider.

Dr. Neal was a member of the medical corps of the Illinois National Guard, and was inducted into the United States Army as a medical officer seven days before war was declared in 1917. He served his country in France where he was at the front for eight months, holding

the rank of Major.

After his release from service in 1919, Dr. Neal helped to organize the Abraham Lincoln Life Insurance Company and became its medical director, and later its secretary, which position he held during the life of that company. He was prominent in the building and operation of the Abraham Lincoln Hotel in Springfield where the family lived until they moved to Chicago some three years ago.

For twenty-one years John Neal was chairman of the Legislative Committee of the Illinois State Medical Society. It was in this field of endeavor that his work was recognized by medical leaders throughout the entire country.

Dr. Neal was president of the Illinois State Medical Society in 1933, a position he held for the customary one year, during which he gave freely of his time and thought to further the best interests of this organization.

During the long period of time that Dr. Neal was interested and active in medical legislation, he invariably had in mind the best health interests of the people of his state. He was a powerful factor in the moulding of sentiment to make the citizens of Illinois more "health conscious," and always, he was a champion of high standards in medical education and in the legal requirements necessary for the practice of medicine. Few men indeed have enjoyed such a wide and favorable acquaintance with legislators over a period of years. Never antagonistic in this line of work, yet invariably Dr. Neal was able to answer questions pertaining to health matters to the satisfaction of the most skeptical legislators. He was unalterably opposed to "lobbies" and invariably strived to show the effects on the citizenry of proposed legislative actions which he conscientiously believed unwise.

For approximately twenty years Dr. Neal was a member of the Medical Examining Committee of the State Department of Registration and Education. During this period of time he gave many hours to the consideration of the problems of medical licensure, keeping in mind always the responsibilities of this important position.

At the time of his death he was medical director of the Alliance Life Insurance Company, a position which he had held for many years. During this time he was considered one of the outstanding medical directors in insurance circles.



John Ross Neal, M. D., Ph. G.
1880 - 1941

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Dr. Neal was also at the time of his death, Dean of the Cook County Graduate School of Medicine. During his tenure of office, he was ever anxious to build up and develop in every way possible this important post graduate school.

Dr. Neal married Flora Dempsey of Springfield on September 17, 1908, and is survived by his widow, two sons, Robert and John, both of Chicago, and two grandchildren, one of whom was born during his illness.

Dr. Neal, or "John" as he was known to thousands in Illinois and elsewhere, was indeed an outstanding character in medical affairs over a long period of years. His outstanding service as legislative chairman of the Illinois State Medical Society made him popular not only with the members of his own profession, but also with hundreds of members of our legislature who knew that his motives were always sincere and his efforts were prompted by a keen desire to see health conditions in his native state constantly improved.

John was always present at the annual meetings of his state medical society. It was rare indeed that he ever missed a meeting of the Council. His suggestions were always solicited when any problems of importance were under consideration.

The officers, the members of the Council, and the entire membership of the Illinois State Medical Society mourn with his family over the loss of John Neal. His passing leaves a vacancy which will indeed be difficult to fill.

"Unto each man his handiwork, unto each his crown

The just Fate gives;

Who so takes the world's life on him, and his own lays down,

He, dying so, lives."

Swineburne.

The health of the people is really the foundation upon which all their happiness and all their powers as a state depend.—Disraeli.

Complacency would be stupid while tuberculosis is still causing more deaths in this country than any other communicable disease except pneumonia, and while there are less than a hundred thousand sanatorium beds to care for half a million people with recognizable clinical infection. Geddes Smith.—*"Plague on Us"* pub. by Commonwealth Fund, 1941.

MEDICAL CARE PROGRAM

The Division of Old Age Assistance, in accordance with plans for a more adequate medical care program for recipients, has asked the Illinois State Medical Society to appoint a Medical Advisory Committee. Some of the problems upon which the Division feels the need of professional advice are: the discriminating use of existing facilities for medical care; interpretation to the professions and the community of the purpose of the program; establishing standards for medical care compatible with good medical practice.

The Committee was recently appointed by the President of the Society and includes the following physicians: Dr. Charles H. Phifer, Chairman, Chicago; Dr. Harold M. Camp, Secretary, Monmouth; Dr. E. P. Coleman, Canton; Dr. Julius H. Hess, Chicago; Dr. James H. Hutton, Chicago; Dr. John R. Neal, Chicago.

Several members of the Committee have served on the advisory committee to the Chicago Relief Administration since the inception of its medical program seven years ago, and are therefore thoroughly familiar with the problems of providing medical care for recipients of assistance. Other members of the Committee have held offices in the Illinois State Medical Society and the American Medical Association.

Representatives of the Division have held two meetings with the Committee in Chicago, and regular monthly meetings will be held hereafter. The Division will present to the Committee for approval all proposed general policies and problems regarding medical care. It is believed that the professional advice so obtained will enable the Division to plan a program which will greatly improve its service to the needy aged in Illinois.

Fletcher C. Kettle, Superintendent, Wallace Clark, Assistant Superintendent, and Miss Pearl Bierman, Medical Social Consultant, represented the Division of Old Age Assistance at the meetings.

—From *The Welfare Bulletin*—Ill. Dept. of Public Welfare, Apr.-May—1941.

Sulfanilamide in Urology—The clinical use of sulfanilamide in the treatment of infections of the urinary tract has grown very rapidly. The presentation of this paper in a medical section gives some indication of the marked inroad which its use has made in the urological specialty, many of whose patients this drug has returned to the medical fold from which they long ago strayed. The ketogenic diet, mandelic acid, and finally sulfanilamide with some of its derivatives have greatly simplified the treatment of gonorrhea and many of the uncomplicated bacillurias together with other relatively simple infections. Crenshaw and Cook have pointed out that in cases associated with cicatricial deformity of the pelvis and calices, obstruction due to stone, tumor, congenital deformity, or hyperplasia of the prostate gland, and in cases with marked urethritis, and especially chronic prostatitis, sulfanilamide is much superior to the other drugs.—*Simpson, Texas State J. Med.*

Correspondence

GOVERNMENT AGENCIES NEED MORE DENTAL HYGIENISTS

The number of Dental Hygienists secured as a result of an examination announced in January is not sufficient to meet the present needs of the National Defense program. Another examination has just been announced — this time on an “open continuous” basis — for positions as Dental Hygienist at \$1,620 a year, less the usual 3½ percent retirement deduction.

Hygienists assist dental surgeons in hospitals, clinics, and relief stations. Cleaning and polishing of teeth, mixing materials, sterilizing and cleaning instruments, and similar duties may be a part of the work. Appointments will be made in the U. S. Public Health Service, the Veterans' Administration, and the War Department.

To qualify, applicants must be *registered* dental or oral hygienists who have completed a full course leading to graduation from a recognized school of oral hygiene. In addition, 2 years of experience are required in oral hygiene in public health or school work or in a private ethical dental office. Graduate dentists will be accepted for the examination provided they have had this experience in oral hygiene work.

Persons rated eligible on the examination announced in January need not file applications for this new examination as the register of eligibles established as a result of the old examination will be combined with the register resulting from the new. Other persons are urged to file their applications with the Commission's Washington office immediately, although applications will be accepted until further notice. Additional information and application forms may be obtained from any first- or second-class post office or from the Civil Service Commission.

AMERICAN CONGRESS OF PHYSICAL THERAPY TO CONDUCT INSTRUCTION COURSE MORNINGS THROUGHOUT ANNUAL SCIENTIFIC SESSION TO BE HELD IN WASHINGTON, D. C.

The 20th annual scientific and clinical session of the American Congress of Physical Therapy will be held September 1 to 5 inclusive, 1941, at The Mayflower, Washington, D. C.

The mornings will be devoted to the annual instruction course, and the afternoons and evenings will be devoted to the scientific and clinical sessions. The seminar and convention proper will be open to all physicians and qualified technicians.

All the phases of physical medicine will be covered in the general program, including a special symposium on poliomyelitis. The program will be of interest to the general practitioner as well as to the specialist in physical therapy.

For information concerning the seminar and preliminary program of the convention proper, address the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

At the same time the 25th annual meeting of the American Occupational Therapy Association will be held at The Mayflower. A combined meeting will be held on Wednesday, September 3, 1941. For information concerning the Occupational Therapy Association meeting, address Mrs. Meta R. Cobb, 175 Fifth Avenue, New York City.

AMERICAN CONGRESS OF PHYSICAL THERAPY

Walter J. Zeiter, M.D.
Executive Director

JUNIOR PUBLIC HEALTH NURSE ADDED TO GOVERNMENT NURSING POSITIONS NOW OPEN

The opportunities for qualified nurses to enter the Government service have greatly increased with the National Defense program. Public Health Nurses are particularly needed in the parts of the country where large defense industries are located.

A civil-service examination for Public Health Nurse (\$2,000 a year) has been open for some time. Nurses who have been unable to qualify for this examination because of the *experience* requirement now have an opportunity to qualify through a new Junior Public Health Nurse examination (\$1,800 a year) which requires *no experience*. Applications are also being received for examinations now open for Junior Graduate Nurse (\$1,620 a year), and Graduate Nurse for general staff duty (\$1,800 a year).

Appointments will not only be made for defense work in the U. S. Public Health Service under the jurisdiction of the Federal Security Agency, but to the Indian Field Service of the Department of the Interior. This new examination, thereby, increases the employment opportunities for nurses who are particularly interested in the Indian Service.

As in the case of the other nursing examinations open, no written test will be required for the Junior Public Health Nurse positions. Applicants will be rated on their education and experience. They must have completed a 4-year high school course which meets matriculation requirements of an accredited university or college. Subsequent to January 1, 1920 they must have graduated from an accredited school of nursing, having a daily average of 100 or more patients. They must be registered graduate nurses and in addition have completed at least 1 year of study in public health nursing at a college or university whose course is approved by the National Organization for Public Health Nursing. Nurses who have had 1 year of supervised experience in general public health nursing may substitute this for one-half of the academic years' study in public health nursing. The maximum age is 45 years; the minimum height 60 inches.

The need for Public Health Nurses is urgent and the Commission would deeply appreciate

your cooperation in this recruiting program to secure Nurses who are qualified for, and interested in, these Government positions. Further information and application forms may be obtained at any first- or second-class post office or from the Civil Service Commission, Washington, D. C.

SEVENTH ANNUAL MEETING, MISSISSIPPI VALLEY MEDICAL SOCIETY

Cedar Rapids, Ia., October 1-3.

The Seventh Annual Meeting of the Mississippi Valley Medical Society, "The Mid-West's Greatest Intensive Post-Graduate Assembly for General Practitioners," will be held in the Hotel Montrose, Cedar Rapids, Iowa, October 1, 2, 3. The program will be given by 30 clinician-teachers who will give over 40 lectures, demonstrations, round table discussions, etc. A special feature of the program will be numerous short instructional courses, there being 32 of these scheduled. On Oct. 1, there will be an ALL-Kansas City Program conducted by 8 well-known clinician-teachers, concluding with a complimentary Stag Supper. On Oct. 2 — the annual banquet will be held with Dr. Joseph B. DeLee, Emeritus Prof. of Obstetrics and Gynecology, University of Chicago, and the Presidents, of Illinois, Missouri and Iowa State Medical Societies as speakers. On Oct. 3 the short instructional courses will be given by faculty members from St. Louis University School of Medicine. There will be a big technical and scientific exhibit hall. Every ethical physician is cordially invited to attend and no registration fee will be charged physicians in the uniform of the armed forces of the United States. The complete program appears in the September issue of the MISSISSIPPI VALLEY MEDICAL JOURNAL and further information may be secured from the Secretary, Harold Swanberg, M.D., W.C.U. Building, Quincy, Illinois.

EXAMINATIONS AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination and review of case histories (Part I) for Group B candidates will be held in various cities of the United States and Canada on Saturday, January 3, 1942, at 2:00 P.M. Candidates who successfully complete the Part I examinations proceed auto-

matically to the Part II examinations held later in the year.

Applications for admission to Group B, Part I, examinations must be on file in the Secretary's office not later than October 6, 1941. Applications for Group A must be in the Secretary's office by March 1, 1942.

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board, meeting at Atlantic City, N. J., immediately prior to the 1942 meeting of the American Medical Association.

As previously announced in the Board booklet, this fiscal year (1941-1942) of the Board marks the close of the two groups of classification of applicants for examination. Thereafter, the Board will have only one classification of candidates, and all will be required to take the Part I and Part II examinations.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

Paul Titus, Secretary.

EXAMINATIONS FOR APPOINTMENTS IN THE MEDICAL CORPS OF THE U. S. NAVY

The Surgeon General of the Navy, Rear Admiral Ross T. McIntire, (MC), U.S.Navy, announces the following schedule for examinations for appointments in the Medical Corps of the United States Navy:

Acting Assistant Surgeon for intern training:
October 6 to 9, 1941, inclusive.

January 5 to 9, 1942, inclusive.

Assistant Surgeon:

August 11 to 15, 1941, inclusive.

October 6 to 9, 1941, inclusive.

January 5 to 9, 1942, inclusive.

Examinations will be held at all of the larger Naval Hospitals and at the Naval Medical Center, Washington, D.C. Applications for authorization to take the examination must be in the Bureau of Medicine and Surgery three weeks prior to the date of the examination. Application forms for these examinations will be forwarded by the Bureau of Medicine and Surgery, Navy Department, Washington, D.C., upon request.

Applications for appointment as Acting Assistant Surgeon for intern training are required to be citizens of the United States of over 21 but less than 32 years of age, members of the junior or senior classes in class "A" medical schools, and to meet the physical and other requirements for appointment.

Applications for appointment as Assistant Surgeon are required to be citizens of the United States of over 21 but less than 32 years of age, graduates of class "A" medical schools, to have had at least one year of intern training in a hospital accredited for intern training by the Council on Medical Education and Hospitals of the American Medical Association, and to meet the physical and other requirements for appointment.

Acting Assistant Surgeons for intern training are assigned to United States Naval Hospitals which have been accredited for intern training by the Council on Medical Education and Hospitals of the American Medical Association, and after they have completed twelve months of intern training may, if they so desire, apply for appointment as Assistant Surgeon in the regular Navy.

Medical Officers of the Navy are encouraged to develop a specialty and if their interest in the selected specialty warrants, these officers are assigned to post-graduate instruction in the larger Naval Hospitals, the Naval Medical Center, Washington, D.C., and at civilian medical centers. Some of the specialties in which medical officers may seek qualification are: Surgery; Medicine; Ophthalmology; X-ray; Laboratory; Pathology; Public Health; Psychiatry; Deep-Sea Diving; Aviation Medicine (Flight Surgery); Gas Warfare; Tropical Medicine; Medical Research; Otolaryngology, etc.

A circular of information for applicants for appointment as medical officers in the United States Navy as Acting Assistant Surgeon for intern training and as Assistant Surgeon, Lieutenant (junior grade), Medical Corps, U. S. Navy, which contains full information regarding physical requirements, professional examination, rates of pay, and promotion and retirement data, may be obtained by addressing a communication to the Bureau of Medicine and Surgery, Navy Department, Washington, D.C.

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

The cost of medical care for those in the low income group has received much attention from various sources during the last several years. As a result of this wide-spread discussion many experiments have been tried to meet this particular problem, but up to the present time those experiments have not solved the problem of this particular group. One finds considerable difficulty in stating the annual income that places one in what we would term the low income group. This may vary in different states, in different counties and in different cities. That is to say that an income of \$1200 a year might be adequate in one locality under certain costs of living and it might not be adequate in another where costs are entirely different. Nevertheless, we are agreed that there is a large percentage of employed people that come under the low income group classification. We are also agreed that they should have the same type of medical care as the people in the higher income bracket. We are further agreed that the medical profession itself has no control over their annual earning capacity excepting those who are employed directly by the medical profession itself. The question has been raised as to whether or not this group is now receiving adequate medical care. Surveys made by the American Medical Association would confirm that they are receiving, in the great majority of instances, adequate medical care, however, this care is being furnished, to a certain percentage, by the county hospitals, free dispensaries, clinics and charitable institutions. The problem then resolves itself, in general, somewhat as follows: Is it possible, under our present system of democracy and free enterprise, for management as a whole to pay a wage sufficient to raise this low income group up to an annual earning capacity whereby they

can afford adequate medical care along with the other necessities of life such as food, shelter, clothing, education and so forth? You might ask, is it possible to do this if they are willing to work? This part of the problem, under our system of free enterprise, is one for management to assume some responsibility for. It goes without saying that management must have the cooperation of labor and of government to reach such a healthy goal. Further, management should have the cooperation of the medical profession to the end that the medical profession will always consider the income, the size of the family, the local conditions, and the amount of sickness in a given family for a given period of time, and render a bill for their services based upon such factors.

Under the present trend of agitation for some form of socialized medicine, it seems obvious that capital will be forced to pay the bill under taxation, and, therefore, in the long run, the cost will be greater. Furthermore, if we are earnestly seeking adequate medical care for the low income group, we do not believe that it can be found under socialized medicine or maintained under socialized medicine. The fact that, at the present time, we are the healthiest nation in the world speaks for the type of medical care the American people are receiving today.

A large part of the total cost of sickness, at the present time, is the hospital expense. Group hospitalization has offered in many areas a suitable solution for this problem, however, in most areas where group hospitalization is available the largest percentage of their subscribers are from those above the low income group. In the city of Chicago, the Plan for Hospital Care, now in the fifth year of its operation, has enrolled 270,000 subscribers. Some cities noticeably

Cleveland shows a much better record. A large percentage of subscribers in Chicago are in the income group above \$1,500 a year. Here again is a problem for management in helping to solve a part of the problem for the cost of medical care. In many instances management has taken a very active part in attempting to secure the enrollment of their employees, however, equally true, in many instances, management has shown some reluctance. A large problem still remains with the low income group who state quite definitely that they cannot afford to pay the rates for hospital care which are as follows: single person, \$9.60 per year; married couple \$18 per year; full family group \$24 per year. They state that they are already in debt and see no way to meet their present obligations and further state that they can secure, if they have to, medical care from the county hospitals, dispensaries, clinics and free institutions. In some instances, management has seen fit to pay either all or a portion of the premium for group hospitalization, and the question arises, is this profitable for management or is it unprofitable and prohibitive. Those who have inaugurated such plans feel that it is profitable because their employees feel a sense of security as regards their health and the health of their families that removes from them certain worries that undoubtedly effect the efficiency of their work. It would seem logical that, if the medical profession is willing to render their services at a low cost to the low income group, then management should also assume some responsibility along this line. Neither management nor the medical profession can place dollars above health. Yet both have to derive a livelihood from the pursuit of their occupation. We recognize, at once, that management is vitally interested and is very rapidly assuming its share of responsibility in providing health insurance, surgical benefits, hospital insurance and life insurance to a large number of its employees through various plans.

The medical profession also, was somewhat slow in realizing the importance of group hospitalization and many of the profession ten years ago were opposed to group hospitalization on the basis that it would tend to develop socialized medicine, and nearly all have changed their minds and now realize the benefits of group

hospitalization to the public, to the hospital, and to the profession. We, as a profession, have to recognize the changing social and economic orders in our vast industrialized country just as management and government have also to recognize this, and it is a mutual responsibility to devise a method and means to meet these changes. Our responsibility relates to medical care and the cooperation we can give to management and to government in finding suitable solutions for the problems at hand.

Dr. R. K. Packard, Chairman
Committee on Medical Economics.

PERIL OF THE DIABETIC DRIVER

Still another driving hazard in the diabetic driver, says a writer in *The Medical World*. Insulin has proved a marvelous boon to the diabetic but it is an unfortunate fact that one who must take insulin is never entirely sure that he will not go into insulin shock. With the old insulin there usually were premonitory symptoms — sweating, nervous instability, disturbances of vision, extreme hunger — that warned him his blood sugar was getting low. The newer insulins, particularly protamine zinc insulin, have a tendency to lower the blood sugar so gradually that the person may go into shock without any warning. Furthermore, the continuous action of the insulin may throw the person into shock a second or third time after sugar has brought him out of the first attack. It is easy to see the menace to others the diabetic driver may become. A news item several years ago told of a driver being arrested for drunkenness and proving in court that he never touched alcohol but was subject to insulin shock. One can sympathize with the diabetic who finds it necessary to drive a car, but for the public good it may be found essential to bar him from an automobile license.

It has long seemed that a government should have a department of health, as well as one of state or of interior. Medical men working in private capacities have done much and are doing much to develop, systematize and teach the principles of sanitary science, but it stands to reason that an organization of the kind indicated might accomplish much more. Our Federal Government has shown a commendable spirit of liberality by assisting in other measures of scientific, commercial or national importance. It has sent ships and astronomers to distant points to observe an eclipse of the sun or a transit of Venus; has fitted out expeditions to search for an open polar sea. . . .

Is human life so cheap and valueless that the government need put forth no efforts to preserve and prolong it?—*Sanders, Transactions of the Association*. 1884.

Original Articles

THE SURGEON AND THE ULCER PROBLEM:

With emphasis on (1) definition of the criteria of an acceptable operation and (2) the importance of maintaining caloric and nitrogen balance in the preoperative preparation and the recovery period in poor risk patients.

OWEN H. WANGENSTEEN, M. D.

From the Department of Surgery, University of Minnesota Medical School, Minneapolis, Minnesota.

The researches presented here were supported by grants of the Graduate School of the University of Minnesota, The Augustus L. Searle Fund for Experimental Surgical Research, the Committee on Scientific Research of the American Medical Association, and by a grant for technical assistance by the Work Projects Administration, Official Project No. 665-71-3-69, Sub-project No. 58.

Ulcer is a common cause of death, being superseded in the mortality columns in abdominal lesions only by cancer of the stomach and appendicitis. When the morbidity factor is taken into account, it looms large as a cause of illness, for throughout the entire life span, from birth to advanced years, patients may suffer, be incapacitated or die from ulcer or one of its complications. Death from hemorrhage from a duodenal ulcer attends the very extremes of life, occurring in the new-born and the infant, as well as the octogenarian. Obstruction, hemorrhage, and even perforation may recur several times during the life time of a single patient with an ulcer. Whereas, ulcer and its complications may shorten life more common occurrences are periodic episodes of disability and unhappiness occasioned by pain and other consequences of ulcer.

The Nature of the Ulcer Diathesis. Many factors have been alleged to play a role in the causation of ulcer. More and more, however, it has become increasingly apparent that acid is the common denominator of the disease. Palmer has

observed that authentic cases of achlorhydria in ulcer are extraordinarily infrequent. Other well-known facts attest the great importance of acid in the genesis of ulcer: 1. The occurrence of typical ulcer, in a Meckel's diverticulum of the small intestine, in the presence of a small ectopic growth of gastric mucosa in it. Such an ulcer may bleed or perforate as occurs in a typical duodenal or gastric ulcer; 2. The rarity or absence of ulcer in patients with pernicious anemia; 3. Absence of ulcer, at gastro-jejunostomy stomas, in patients with carcinoma of the stomach.

Even more significant is the experimental evidence in emphasizing the importance of acid in the causation of ulcer. The Mann-Williamson operation which diverts the alkaline bile and pancreatic juice into a lower level of the intestine, precluding neutralization of the acid gastric juice and the achievement of an intestinal chyme with a neutral PH, fairly high in the jejunum, is followed quite consistently in the dog by a high incidence of gastrojejunal ulcer at the new gastric outlet. When retrograde regurgitation is prevented by the insertion of a Dragstedt valve, diversion of bile and pancreatic juice is followed by gastrojejunal ulcer in 100 per cent of instances. Placement of organs with their blood supply intact within an isolated gastric pouch in the dog, is followed consistently by digestion of the organ.

Ulcer Produced by Stimulation of Gastric Secretion by Histamine. More recently, in this laboratory, employing Code's method⁶ of implanting histamine in beeswax, to permit gradual liberation of the histamine, ulcer has been produced consistently in the dog, cat, guinea pig, chicken, duck and the pig.^{16, 27, 28} Superficial erosions have followed intramuscular implantation

Oration on Surgery, 101st Annual Meeting, Illinois State Medical Society, Chicago, May 20, 1941.

of histamine in beeswax in the monkey, woodchuck, calf, and rabbit. In the first group enumerated above in which typical ulcers were produced, perforation and hemorrhage were the rule.

That pepsin plays a role in the erosive process of ulcer formation is not to be denied. Yet, it is accepted quite generally that histamine does not stimulate gastric secretion in a physiologic manner, inasmuch as the juice secreted under the influence of histamine is high in acid and poor in pepsin. A concentration of 170° or clinical units (.625 hydrochloric acid) has been observed in a dog with an isolated gastric pouch under histamine stimulation. The secretion of acid under histamine stimulation, in such instances, is probably so rapid that no opportunity is afforded for reduction of acidity by secretion of mucus and other intrinsic neutralizing factors which operate normally to regulate the acidity of the gastric juice. Concentration of .625 per cent. of hydrochloric acid represents the maximal concentration of hydrochloric acid, that the gastric glands are capable of secreting. Schiffrin's insistence that pepsin is the significant factor in ulcer production does not appear to be a stand well taken in the light of the histamine-produced ulcer.

Management of Ulcer. Effective therapy must, of necessity, be directed at the reduction of gastric acidity. The frequent ingestion of food is probably the most important single item in the control of gastric acidity. The experience of Dragstedt and his co-workers on the comparative rate of the erosive process of gastric juice upon organs implanted intact into the stomach and isolated gastric pouches gives added proof of the inhibiting capacity of food, present within the stomach. Dragstedt and Vaughn failed to find evidence of digestion of tissues, when implanted into the intact stomach; when, however, similar implantation of tissues, pedicled on their blood supply was made into isolated gastric pouches into which food did not find its way, Matthews and Dragstedt, observed regularly, advanced grades of digestion of the implanted tissues.

The selection of food is probably of lesser importance than frequent feeding. It is to be recalled that Pavlov employed meat, milk, and bread to assess the secretory response in the dog and observed that all were keen stimulants of the gastric secretory mechanism, as was water also. When employing corresponding nitrogen

equivalents of meat, milk and bread, Chigin, who carried out the experiments under the direction of Professor Pavlov, made the following observations:

1. Feeding of 100 grams of meat produced 27 cc. of gastric juice with a digestive strength of 4 mm.;
2. In response to 600 cc. of milk (equivalent in nitrogen value of 100 grams of meat) 34 cc. of gastric juice with a digestive capacity of 3.1 mm. was secreted.
3. The feeding of 250 grams of bread produced 42 cc. of gastric juice with a digestive strength of 6.16 mm.

From similar amounts of bread, milk, and meat it may be concluded from Pavlov's observations that meat and bread produce a gastric juice of strong digestive capacity; that less juice is secreted in response to bread and milk and that the digestive strength of milk juice is relatively low as contrasted with meat and bread.

Though the gastric secretory mechanism is stimulated unequally by most foods, it should be borne in mind that all foods, including water, may stimulate the secretion of acid. It may be said quite fairly, I believe, that more attention has been paid to the form of the diet of patients with ulcer than to the effect of various foods upon the acid-secreting mechanism.

Night Secretion. On the dog, Pavlov failed to observe a basal level of secretion and believed that acid secretion disappeared during fasting. In man, however, in the patient with or without ulcer, it has been demonstrated adequately by Carlson and others,¹⁷ that there is a basal level of secretion. As a matter of fact, the liberal secretion of hydrochloric acid at night can be verified easily by applying suction to an indwelling duodenal tube. Surprising quantities of gastric juice of high acidity may be recovered quite regularly. As Winkelstein has pointed out, patients with ulcer are more likely to exhibit high acid values in the night secretion, than patients without ulcer.

It is this item of *uncontrolled* night secretion, over which effective management of ulcer breaks down. If acid secretion could be depressed effectively during the hours of sleep, when no food is ingested, the efficacy of medical management would be enhanced considerably, undoubtedly. An alarm clock can, no doubt, be used to good

purpose to lengthen the hours over which control of acidity may be achieved by frequent feedings. Administration of a physiologic dose of atropine at bedtime should prove helpful also. Yet, extension of the effectiveness of medical management of ulcer awaits the development of new methods to depress gastric secretion.

The Surgeon's Responsibility in the Management of Ulcer.

(a) *Perforation.* Perforation, which is the most important factor in ulcer mortality, is by common consent a complication which demands the intervention of the surgeon. Early closure of the defect is admitted generally as the only procedure which will assure any measure of success.

(b) *Hemorrhage.* Reports from large, general hospitals indicate that the mortality from massive hemorrhage in ulcer is in the neighborhood of 10 per cent, a much higher figure than is believed generally to be the case. Finsterer (Austria), Gordon-Taylor (England), and Allen (Boston) have long been advocates of the operative management of patients with massive hemorrhage from ulcer. General recognition of the risks run by patients with massive hemorrhage, and development of a satisfactory technique of dealing with the bleeding point and closing the duodenum will result in the salvage of many patients, whose lives are allowed to ebb away because of failure to control bleeding. It is well known, that the majority of such fatal hemorrhages occur from a perforated posterior wall duodenal ulcer, with erosion of the gastroduodenal artery. Ligature of the bleeding vessel and closure of the duodenal wall present a difficult surgical problem. The pancreas, in the writer's experience, provides an accessible and dependable tissue to insure tight and safe closure of the open duodenum.³¹ The method depicted in Figure 1 has been employed in several cases of massive hemorrhage.

In a recent discussion of the problem, of the management of massive hemorrhage in the patient with duodenal ulcer, Roscoe Graham, who speaks from a large surgical experience, and others expressed themselves as being opposed to active surgical intervention, feeling that more lives would be lost than saved by this expedient. The two problems which demand the attention of the surgeon, who essays to deal with such cases surgically, as described above are: 1. Absolu-



Figure 1. The writer's method of closing the open duodenal stump in duodenal ulcer with massive hemorrhage. This technique fulfills the two important desiderata of a satisfactory operation, which are: (1) absolute control of hemorrhage and (2) safe closure of the duodenum precludes leakage. (Reproduced through courtesy of Surgery.)

lute arrest of hemorrhage and 2. Safe closure of the duodenum, such that leakage can not occur. The first of these is easy of accomplishment; the latter may be extraordinarily difficult.

In the group of patients with bleeding ulcer, subjected to emergency operation, previously reported by the writer, there were several whose status was grave. The operation in some of them is described well, in the terms, antemortem operation. Two patients out of 17 operated upon to date, have been lost. One was a technical failure and death occurred. The other failure occurred in a man past 80 years in whom ill-advised surgery was undertaken, as a measure of last resort.

Meulengracht admits having allowed 9 patients to die of massive hemorrhage, without operative intervention, believing that nothing could be done for them. Meulengracht's figures, on the success of frequent feedings in the management of bleeding ulcer, would not appear so impressive if one knew how many were cases of

massive hemorrhage with shock, in which it was difficult or impossible to sustain a normal blood pressure, despite repeated transfusions.

Dragstedt's experience, with the lesser erosive process in organs implanted into the full stomach, supports Meulengracht's thesis that frequent feeding is an important principle in the arrest of hemorrhage from a bleeding ulcer. To accept failure with resignation, as inevitable in the ominous bleeding patient, is to deny *established fact*. The operation *can* be done, even in the ante-mortem case, with a reasonable mortality. Utilization of the pancreas, in effective, adequate closure of the open duodenum, is the factor that makes the procedure feasible.

Wide adoption of aggressive surgical means of arresting hemorrhage from bleeding ulcer, is to be discouraged. Creditable achievement in this particularly difficult aspect of gastric surgery, is to be accomplished, only, by concentrating the surgery in the hands of those anxious and willing to give the matter the study, time and experience, which the matter justifies.

c) *Obstruction*. Persistent obstruction is a compelling indication for operation. Many instances of obstruction relent with bed rest and the temporary withholding of feeding by mouth. Too often, however, the trial on conservative management, on such patients with antispasmodics and gastric aspirations, is too protracted and such patients reach the surgeon in poor condition to withstand operation. The manner of preparing such patients for operation will be dealt with in a subsequent section of this paper.

d) *Pain*. Patients who secure adequate relief on conservative management, and who do not experience inconvenience because of dietary restrictions imposed on them, will not need the attention of the surgeon. There are, however, a large number of patients, who suffer repeated recurrence of their ulcer and who are disabled for several weeks to months at a time. Such patients, in the main, welcome a surgical procedure, which holds out a reasonable promise of relief.

What Has Surgery to Offer the Ulcer Patient? Recognizing the great importance of acid in the genesis of ulcer, one of the primary considerations of the surgeon should be choice of a procedure which would reduce gastric acidity, effectively. The number of procedures which can

be depended upon to accomplish this objective consistently are not numerous. Operations which fail to reduce gastric acidity leave too much to chance and are not to be recommended. Most operative procedures on the stomach, whether anastomotic procedures which establish a new outlet, or excision types of operation in which a portion of the stomach is sacrificed as well, are attended quite regularly by a decrease in emptying time of the stomach. Reduction in gastric emptying time, alone, without reduction in gastric acidity, prejudices the future for the patient, in that no assurance against recurrent or stomal ulcer is afforded.

This is the *crux* of the matter with reference to employment of surgery in the management of ulcer. Emery and Monroe, writing with the background of a broad experience in the management of ulcer, state that medical treatment, in a large number of instances, is unsatisfactory. In a patient with the ulcer diathesis, one can not speak of medical cure. To be sure, there are undoubtedly instances in which the ulcer, together with all manifestations of its presence, disappears. Yet, the ordinary patient with an ulcer is doomed to bear his cross with the vicissitudes of fortune throughout life.

Emery and Monroe observed that the results of surgical procedures, in the main, were no more promising than in the group treated conservatively. Insurance statistics indicate, likewise, that the most important cause of death in patients who have had surgical treatment is recurrent ulcer.³³

The urging of an operation upon a patient for the relief of ulcer is not, therefore, a light matter. If gastric acidity is not reduced effectively, the patient runs a large hazard of developing a stomal ulcer, let alone curing the ulcer for which the operation was undertaken. It is needless to say that the status of such patients is far worse and more serious than the original condition.

What Are The Criteria of an Acceptable Operation? Up until now, the success of a procedure has been determined largely by whether the patient developed recurrent symptoms of ulcer. In the final analysis, such a scheme, of necessity, is a good criterion. Unfortunately, however, it often takes years to evaluate the worth of an operation on this basis. In the meanwhile, a large number of operations are

performed on the basis that a given procedure is endorsed by someone, who professes to speak with authority. The fallacy of this practice is not difficult to detect. A number of surgeons, in many places, attempt to assess the worth of a suggested procedure in the absence of general, crystallized agreement concerning the value of any or all procedures. As a result, many patients with ulcer have procedures of questionable worth performed upon them. Surgeons and patients must wait for years, with suspended interest, to know whether the experiment was a success or failure.

This scheme of assaying the value of operations performed for ulcer has been continued too long. Now, that the importance of effectual reduction in gastric acidity is becoming recognized generally as the *sine qua non* of a successful operation for ulcer, one can set up simple experimental criteria to assess the value of an operation, rather than to wait for years the outcome in patients submitted to operation.

It may be debated whether the achievement of achlorhydria is a reasonable objective. This writer entertains the conviction that if the patient can be made persistently achlorhydric, he will not develop a recurrent ulcer. The experience of this clinic with the surgical management of ulcer appears to support this belief.

In this paper, only those patients who have shown no free hydrochloric acid after three successive injections of histamine at half-hour intervals in doses of one-half milligrams (total of $1\frac{1}{2}$ mg.), in repeated trials are described as being achlorhydric.

It will be observed (Table I) that in our most successful group employing this criterion, we have achieved this grade of achlorhydria in only 65 per cent of the cases. However, 80% of the patients have been achlorhydric persistently after operation, save for the appearance of free-Hcl on a single specimen. It is to be admitted freely, that such maximal stimulation of the gastric secretory mechanism, by three successive injections of histamine, may constitute a more severe test, of a successful procedure, than is necessary. Yet, if a patient remains persistently achlorhydric when submitted repeatedly, at varying intervals of time, after operation to this crucial test, he is not likely ever to suffer from recurrent ulcer.

What Operative Procedures Reduce Gastric Acidity Effectually? For a period of half a century, patients with ulcer have been submitted to operation in increasing numbers. Applying the criterion of *wait and see*, it has been difficult to determine with wide application, in large and small hospitals throughout the world, of frank

TABLE I

Incidence of Achlorhydria and Gastrojejunal Ulcer	After Varying Types of Operation for Ulcer	Number of patients	Number of Patients Consistently Achlorhydric to Triple Histamine	Gastrojejunal Ulcer
Group I (Gastrojejunostomy)		29	0	10%
Group II (Antral or Partial Gastric Resection)		6	0	2 (33%)
Group III (Three-quarter Resection, Excising Antrum)		63	41 (65%)	0
Group IV (Finsterer Exclusion)		12	3 (25%)	1 (8.5%)
Group IV A (Finsterer Exclusion With Excision of Remnant of Antral Mucosa)		9	6 (66%)	0
Group V (Antral Resection plus Total Intra-gastric Regurgitation)		3	0	2 (66%)
Group VI (Extensive Gastric Resection and Gastrojejunostomy)		8	2 (25%)	0
Group VII (Extensive Gastric Resection)		5	0	0

*Only 29 patients submitted to study after triple stimulation with histamine. In 138 patients, who have had gastrojejunostomy, gastrojejunal ulcer was observed 14 times.

experimental operations, as such empirical procedures of necessity are, which the worthwhile procedures in the relief of ulcer are. Such a criterion does not have a sharp enough end-point. Conflicting reports in consequence have emanated from clinics, the world over, concerning the values of a given procedure. Operations have been extolled, which time and the sharper end-point of effectual reduction of gastric acidity have shown to possess but little inherent merit.

In our own clinic, a number of operations have been set up, in an attempt to assess the value of an operation from the standpoint of effectual reduction of gastric acidity. These operative procedures are depicted in Figure 2. They permit evaluation also of the validity of the Edkins'

1. A preliminary report upon the data was made previously and within the past year,³³ my associate, Doctor Bernard Lannin, has been continuing the inquiry.

Study of Table I indicates that the Group III operation (see Figure 2) is the most satisfactory procedure viewed from the standpoint of effectual reduction of gastric acidity. Gastro-jejunostomy is the least satisfactory of all operations. Performance of gastro-jejunostomy for bona fide cases of duodenal ulcer, as indicated in the Group I represented in the Table is not attended by achlorhydria, but is followed by a high incidence of gastro-jejunal ulcer.

In a recent study, Church and Hinton observed an incidence of gastro-jejunal ulcer in 18 per cent of gastro-jejunostomies followed for a period of years. This writer has undone gastro-jejunostomies, either because of gastro-jejunal ulcer or because of failure of the procedure to relieve the ulcer, in a number of instances, 20, 30, and even 38 years after the gastro-jejunostomy was performed.

With reference to the Edkins' hypothesis, Groups II, IV, IVA, and VI operations shed important light on the matter. It is to be noted that the small, antral gastric resection (Group II) is not followed by achlorhydria; achlorhydria attends leaving a part of the antrum, but sacrificing a liberal portion of the acid-secreting area (Groups IV and VI) in only 25 per cent. of the

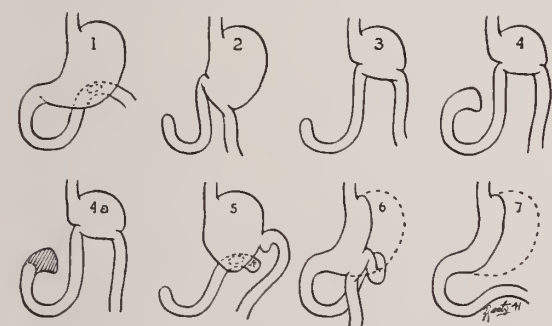


Figure 2. The operative procedures which have been set up to test the validity of the Edkins' hypothesis and to determine what type of operation reduces gastric acidity most effectively. The results are outlined in Table I, which carries, also, a brief description of each operation. It may be remarked here, that all of these operations are accompanied by a reduction in emptying time of the stomach.

hypothesis of control of gastric secretion, which theory has come to have practical connotations of great importance for the surgeon doing gastric surgery. The Edkins' theory suggests that a hormone having its origin in the antral gastric mucosa, in a sense, is the *regulator* or *titillator* for the secretion of acid from the stomach, as a whole. Whereas gastric glands are distributed throughout the whole of the stomach, it has been known for a long time that there are no acid-secreting cells in the gastric tubules in the prepyloric zone of the antrum. The distribution and concentration of gastric glands is largely as shown in Figure 3.

Results of the Study

The results of the inquiry are shown in Table



Figure 3. The black area represents the zone in which the distribution of the acid-secreting cells is maximal in the stomach. In the white prepyloric region of the antrum, there are normally no parietal cells or acid-secreting cells. It is this area which is referred to commonly, as the "regulator" or "titillator" of acid secretion (Edkins' hypothesis of gastric secretion.) The shaded areas indicate a lesser concentration of acid-secreting cells. (After Berger *Am. J. Anat.* 8:87-34.)

cases. The Group IVA operation, however, in which the pyloric sphincter is left, but the residual antral mucosa removed, is followed by persistent achlorhydria, in a fairly high per cent of cases (66%). It may be inferred, therefore, on the basis of the Group II procedure that the Edkins' hypothesis is invalid. Moreover, on the score of procedures IV, and VI it is to be assumed that the Edkins' hypothesis has merit, in that leaving a fragment of the antral mucosa lessened materially the opportunity of making the residual stomach achlorhydric. It is to be admitted that the use of maximal stimulation with histamine, by three successive injections of $\frac{1}{2}$ milligram doses at half-hour intervals, as carried out in these observations, introduces the factor of an additional stimulus, beyond the presence or absence of the source for gastrin, described by Edkins'. Nevertheless, the observed incidence of spontaneous gastro-jejunal ulcer (Group II) and the capacity of the operations II, IV, IVA and VI (with a source for gastrin potentially present or absent), to make the patient achlorhydric have a fairly good correlation. As yet, gastro-jejunal ulcer has been observed only in Groups I, II, IV, and V. In any group, in which achlorhydria is not achieved frequently, recurrent ulcer will undoubtedly occur, in time.

The Group V operation, it is to be observed, is not an operation to be recommended. It succeeds in bringing about complete intra-gastric regurgitation of bile and pancreatic juice, both of which are powerful stimulants of gastric secretion. Such complete intra-gastric regurgitation stimulates the gastric or second phase of gastric secretion interminably, in consequence of which recurrent ulcers form.

Choice of Operation. These observations afford some helpful clues in the selection of a procedure which will accomplish the primary objective of surgical therapy of ulcer, viz; effectual reduction of gastric acidity. Anastomotic operations, (Group I) as represented by gastro-jejuno-stomy fail to meet the requirements of a satisfactory operation, in that they fail to reduce gastric acidity. Similarly, extensive excision of the acid-secreting area alone (Group VII) does not satisfy the demands of an acceptable procedure. When, however, extensive excision of gastric tissue, including the antral mucosa, is combined with a gastro-jejuno-stomy which al-

lows opportunity for some intra-gastric regurgitation (Groups III and IV A), the objective of a satisfactory operation is met in a high proportion of the cases. It appears that sacrifice of 75 to 80 per cent of the stomach is necessary to achieve this objective.

The Indications for Operation. The distinguishing characters of any worthwhile therapeutic measure, are (1) that the objective may be achieved with minimal risk to life (2) that the procedure accomplishes actually what it purports to do.

It is obvious that these fundamental criteria must be weighed carefully in every patient who is advised to have operation. It involves such primary considerations as: (1) who is to do the operation? (2) what operation does the surgeon purpose to perform?

When these questions can be answered to the complete satisfaction of everyone concerned in the decision, the matter of the indication for operation, in most instances, is relative. The three-quarter gastric resection Group III operation, has much to offer the patient who suffers from ulcer distress, and who can not be controlled satisfactorily on medical management.

The Problem of the Gastric Ulcer. Because of the possibility of confusion with malignancy, the gastric ulcer presents a special problem. Everyone who has had any experience in the management of ulcer will admit freely that this distinction can not be made in a number of cases. As Holmes has pointed out, a filling defect in the immediate pre-pyloric zone is likely to be neoplastic. The juxta-esophageal lesion is difficult of accurate identification, and in the experience of this writer, benign lesions with low gastric acidity, not uncommonly attend such ulcers. The lesion on the lesser curvature, above the incisura which becomes smaller or heals out, on bed rest and conservative management is benign, in most instances. Even malignant lesions in this location may, however, respond similarly.

This dilemma of being certain of the real nature of the gastric lesion deserves the studied attention of roentgenologists, internists, and surgeons. Allen of Boston has advocated consideration recently of gastric ulcer as being primarily a surgical problem. Certain it is, that surgeons should have a part in the decision concerning the

choice of therapeutic procedure in such patients.

Preoperative Preparation of the Obstructed Patient and Postoperative Care. Up until now, surgeons have concerned themselves largely with the maintenance of proper water and electrolyte balance and vitamin requirements in preparing patients for, and, caring for them after operation. There are, however, two other items of fundamental concern: (1) Meeting the caloric needs of the patient and (2) Satisfying his nitrogen requirement. The work of Whipple and his collaborators in emphasizing the possibility of maintaining nitrogen balance in dogs by intravenous infusion of plasma alone has opened up a new and practical manner of preparing patients for operation, who present obstruction at the gastric outlet. In this clinic, maintenance of nitrogen equilibrium has been demonstrated upon patients in whom the only source of exogenous intake of nitrogen was intravenous injection of human plasma. Elman has demonstrated, also, the feasibility of supplying nitrogen to patients by the intravenous injection of amino acids. In the experience of this clinic, most of the amino acids available commercially will not maintain nitrogen balance, on intravenous injection, when they constitute the only source of nitrogen intake. When, however, a small amount of human plasma which constitutes a complete protein is employed as a supplement to the amino acids, nitrogen balance may be maintained on intravenous injection also.

In the presence of an obstructed gastric outlet, caloric balance may be maintained by the slow infusion of a 20 per cent solution of glucose in a small vein selected in the hand, forearm or leg. A 20 gauge needle and proper fixation of the needle allow quite free movement of the arm, permitting long continued infusion. A minimum of ten hours is employed to administer 1500 cc., to obviate spillage of sugar in the urine.

For a period of two years, this general plan of management has been used in the preparation of patients exhibiting the effects of starvation, for operation.³² During this interval of time, no two-stage procedures have been done on patients presenting obstruction at the gastric outlet. In a period of ten to fourteen days, patients presenting themselves as extremely poor surgical risks, as a result of gastric obstruction, may be gotten into satisfactory condition for operation,

as a rule. Such patients will gain in weight, and strength, the turgor of the skin improves and primary resection can be carried out, whether such patients suffer from ulcer or cancer.

Physiologists have taught, that short periods of starvation are withstood with impunity so long that surgeons have been slow to realize the importance of meeting the caloric requirements of surgical patients. Moreover, surgeons have ignored completely the nitrogen demands of the body.

In this clinic, we have been at pains to meet the caloric and nitrogen requirements, as well as the water, electrolyte and vitamin needs of all patients having major operations on the gastrointestinal canal, throughout the early post-operative period, until the patient can manage well enough by the oral ingestion of food alone. The task, which one imposes upon the intramural staff of an active hospital service in carrying out this plan, is immense and can be appreciated fully, only when one has striven to accomplish this objective. The time is not far distant, this writer believes, when the great importance of meeting adequately the nitrogen caloric, as well as water, electrolyte and vitamin needs of patients, will be accepted as fundamental in carrying through major surgical procedures with minimal mortality. Perfection of surgical technique and proper care of the patient, before and after operation, will extend surgery to an increasingly larger number of patients who may benefit by its accomplishments.

The writer has stressed elsewhere the importance of not overhydrating patients who are poor surgical risks, especially patients in the upper age brackets with poor cardiac reserve.³² Oliguria, in the early postoperative period, has been an uncommon experience, with the administration of reasonable amounts of fluid, with the use of 20 per cent glucose solution to meet the caloric requirements of patients. Use of the bed-side weighing scale, before and after operation, has proved an indispensable adjunct in the control of the status of hydration.

The shock-frame and the Trendelenburg position, to support blood pressure; indwelling gastric suction before, during, and after operation, and free use of an electric aspirator to keep the throat dry during the recovery period, to obviate regurgitation of mucus, as well as gastric con-

tent, into the lungs during the recovery period are items of *first* concern in conducting a patient safely through the hazards of an operation. Only a *planned* procedure can anticipate and avert the numerous possibilities for accident or difficulty in an operation.

The Operation. The closed method of gastric resection has been used exclusively in this clinic now for about three years.³⁰ It presents some advantages which lie outside the province of this paper to discuss. The Group III operation, performed on the Hofmeister plan, is the operative procedure of choice.

The special technical considerations, which need the attention of the surgeon in the performance of the Group III operation are: (1) Safe closure of the duodenum; in those instances presenting unusual difficulties, salvage of the seromuscular portion of a small width of the antrum, with excision of the antral mucosa may simplify the problem; (2) The establishment of a stoma which permits filling from the afferent jejunal loop and emptying through the efferent without evidence of obstruction.

Obstruction of the efferent outlet has ruined many an otherwise satisfactory procedure. Surgeons complain of the many causes which may initiate its occurrence. The site and size of the stoma, as well as the length and direction of the afferent loop and hypoproteinemia, are the factors which have received most notice as being the causative agents. The experience of this clinic, in the making of gastro-jejunal stomas, suggests that in the majority of instances, obstruction at the efferent outlet is of the surgeon's *own making*. Strict adherence to utilization of not in excess of $\frac{1}{2}$ to $\frac{3}{4}$ cms. of the jejunal and gastric wall in making the apposition will preclude its happening. If the surgeon employs too much of the adjacent intestinal and gastric wall, a mucosal flap covers over the efferent outlet and interferes with emptying. No mythical causes need be sought to explain its occurrence. Better technique, on the part of the surgeon, will eliminate the necessity for secondary procedures aimed at its correction.

Obstruction to the afferent loop, though not so well known, is undoubtedly, a potentially more serious complication. A mucosal stomal flap is not as likely to be responsible for its occurrence, for such a flap would be elevated and displaced by the pressure of the contents of the

proximal jejunal loop. Angulation of the proximal loop, at the gastro-jejunal stoma is the likely cause. And the serious aspect of the matter is, that obstruction here makes of the duodeno-jejunal loop, a closed obstruction. Inasmuch as the vessels, in this section of the gut, penetrate the circular muscle of the bowel wall, immediately on leaving the mesenteric pedicle of the bowel, and disperse themselves submucosally over the periphery of the bowel, relatively slight increases in intraluminal tension will bring about serious and tragic consequences. In order to obviate increases of intraluminal tension in the proximal loop during the early convalescent pe-

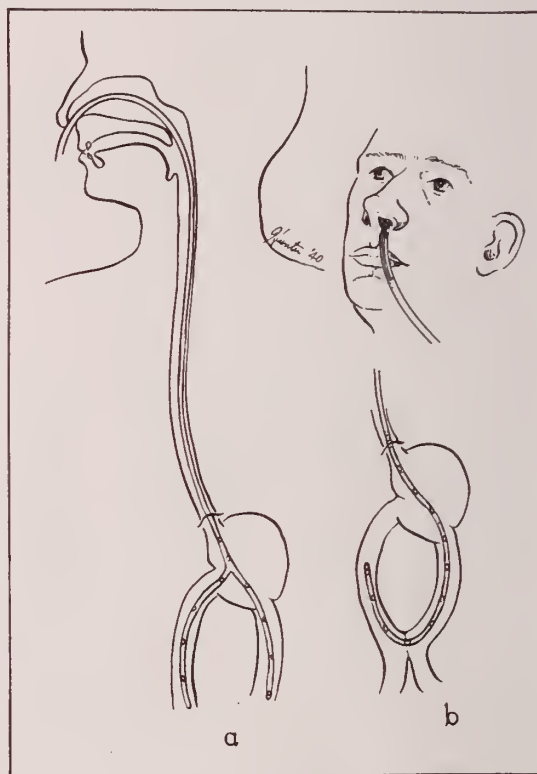


Figure 4. Forked type of inlying gastric tube employed after gastric resection to avoid stasis in the proximal duodeno-jejunal loop. (Available through the V. Mueller, Company, Chicago.) Reproduced from *Surgery, Gynecology and Obstetrics*, February 15, 1941. Vol. 72, 257-281.

riod, the writer has employed a forked type of inlying gastric tube. (Figure 4) At the time of operation, one fork is placed into the afferent and the other into the efferent loop. Since this procedure was invoked a year ago, no obstructions at the gastro-jejunal stoma have been observed, during which time more than one hun-

dred patients have been submitted to gastric resection for the relief of cancer and ulcer.

The difference between success and failure is often only a hair's breadth. Yet the difference between a live and a dead man is no trifle. There can be no doubt, that a surgeon, who strives to achieve a measure of success beyond the ordinary must be a perfectionist. Too often, the follies of our practices are bitter reproaches to the utterances of our lips and the wisdom expressed in our plans.

Results of Operation (Group III Operation). The experience of this clinic in more than 100 consecutive operations suggests that the three-quarter resection for ulcer may be done with a 2 per cent mortality for gastric and duodenal ulcer, including the complications of hemorrhage and obstruction, and gastro-jejunal ulcer from a previous gastro-jejunostomy. The risk in the gastric malignancy group, essentially because of concentration of the patients in the upper age brackets, carries a risk of approximately 10 per cent.

Patients who accept operation, which succeeds in reducing gastric acidity effectually, are a pleased group of patients. They are free from pain and are rid completely of the ulcer diathesis. If the patient is achlorhydric, there will be no recurrence of ulcer. It is to be admitted, however, that no operation has been found that will make 100 per cent of patients consistently achlorhydric to maximal stimulation (1½ mg) with histamine. Yet, the successes in the Group III operation, from the standpoints of reduction of acidity as well as freedom of recurrent ulcer, are so satisfactory, as to suggest that it is an acceptable therapeutic measure in the surgical management of ulcer.

Inasmuch as the patients are largely achlorhydric, they may eat anything, without dietary restrictions. This is very welcome news to a group of patients, who have been denied a large number of inviting foods. Because of the small gastric capacity, patients, who accept the three-quarter resection, find it necessary to eat often for a few weeks or even a few months. The fundic portion of the stomach, however, is capable of a good deal of stretch and, in time, such patients have an adequate gastric capacity restored.

SUMMARY AND CONCLUSIONS

Ulcer is a common cause of disability. It takes, also, a fairly large toll of lives. On the basis of clinical observations, supported by good experimental evidence, it would appear that *acid* is the important factor in the genesis of ulcer. Chronic perforating ulcers may be reproduced in a variety of animals by stimulating the intrinsic secreting mechanism for the production of acid by histamine.

Inability to control gastric acidity effectually is the chief cause of failure in the medical management of patients, who suffer from ulcer. Night secretion contributes materially to failure of dietary control of gastric acidity.

Effective reduction of gastric acidity is also the chief criterion of an acceptable operation, directed at relief from ulcer. Anastomotic operations, as represented by gastro-jejunostomy, fail to reduce gastric acidity, and are not to be recommended in the surgical management of ulcer. The most acceptable procedure, in the light of the surgeon's objective of effectual reduction of gastric acidity, appears to be the three-quarter gastric resection, with sacrifice of the pylorus and antrum, accompanied by a satisfactory gastro-jejunal anastomosis. The writer establishes gastro-jejunal union, after resection, by the closed (aseptic) method of anastomosis, and prefers the Hofmeister plan of operation. The anastomosis is made in an anti-peristaltic fashion and is invariably retrocolic.

Consistent achlorhydria has been achieved in 65% of patients by the Group III plan of operation, to maximal stimulation with histamine; 80% have been achlorhydric on all but one examination. No recurrent ulcers have been observed after this type of operation. No dietary restraints are imposed on these patients. Restoration to useful activity, freedom from distress and ulcer recurrence, and a normal diet are measures which recommend this procedure. The experience of this clinic suggests that the operation may be done for ulcer and its complications (exclusive of perforation) with a risk of 2%.

The importance of maintaining caloric and nitrogen equilibrium in poor risk patients is stressed. By intravenous feeding, the patient with obstruction at the gastric outlet may be prepared for operation and have the one stage procedure performed, as is done in standard

risks. It is equally as important to maintain caloric and nitrogen balance during the recovery period. Acceptance of these measures by surgeons will extend the accomplishments of surgery to poor risk patients, without increasing materially the operative risks, beyond those assumed by standard risk patients.

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MEDICAL CARE OF SOCIAL SECURITY CLIENTS*

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There are several factors that enter into a discussion of this subject. A thorough knowledge of the principles that govern the administration of relief and Social Security clients would help to clear up some of the confusion and misunderstanding that has developed throughout the country among physicians regarding the care of Social Security clients. The chief difference in planning medical care for these people lies in the statute that limits how procedures can be done for Social Security clients. In considering these facts we should remember that the past eleven years have

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brought many necessary legislative changes, national, state and local, relative to providing funds for the care of the poor.

We should likewise remember that in the beginning of the depression federal legislation known as Federal Rules and Regulations No. 7, made provision for medical care when setting up programs for relief. In these programs the clients were to have the free choice of physicians. This being a national ruling it was incorporated in most of our state programs and has proven to be one of the most constructive measures adopted relative to the care of clients on relief. It is no doubt confusing to many physicians who have rendered care to Social Security clients that they are not governed by the same principles.

It should be stated that during the interim since the depression, strategic efforts have been made throughout the country by people interested in the welfare of the indigent to try to secure employment for this vast army of unemployed. Systematic efforts were made to study them and classify them into categories. Notations were made as to their age, sex, health, occupation, handicap, employability, financial assets and responsibilities. Many were employable. Some, because of varied handicaps, were unemployable. Noticeably outstanding in this group throughout the country were the aged, the blind and the dependent children, for whom the only future was the poor-farm. It was with the hope of removing these three groups from the poor-farm and institutions and providing them with the necessities of life that they were included in the Social Security act when it was signed on August 4, 1935.

In order for the different states to participate in the Social Security Act it became mandatory for them to pass enabling laws to conform to the different categories of the Social Security Act. Many of these laws differ in their objective in that they have been so constructed as to meet the demands of a particular state. These laws may vary in different states because of geographic location, industry, employment, type of population, number and type of clients involved, the funds required and the state's previous taxes and obligations, the fact that many communities are slow in accepting the dogma that Social Security should not only include provision of shelter and sustenance but also that of good medical care. All of these factors may influence

the construction of a state's enabling laws and their program for medical care.

The federal and state laws, while conforming in principle, differ in their function. The federal act defines eligibility and while the federal government matches the state's funds for assistance dollar for dollar, it specifically states that there shall be no matching of funds where the money is paid to anyone other than the recipient. The state law is responsible for the administration and operation of a program for the care of Social Security clients in that state.

There remain at this time about five states, of which Illinois is one, that have not as yet passed enabling acts covering the aid to dependent children and the blind. Legislation of this type is compulsory if these five states desire to participate in each of the categories of the Social Security Act. Their delay defers organization, administration and operation of any plan until their legislative program has been completed.

The practical application of the principles of these laws once they become a part of the statute of the state still remains a gigantic problem to organize, administer and finance before they can benefit the clients. This is noticeably greater in some states than in others. It is obvious that certain agricultural states with a scattered population would have fewer clients and less obligations than those states with large metropolitan areas, as well as leading industries which tend to concentrate the populace and incidentally increase the number of dependents.

In some instances supplementary legislation will be required to change some of the present laws regulating the Social Security Act as well as to develop additional funds for a medical program. The question of how to develop a good program for the medical care of Social Security clients within the present status of the Social Security Act is a problem that cannot be done in most states without many handicaps.

It is my belief that a practical example of some of the problems that the Social Security Act present may be more readily determined by a review of some of the pertinent factors in the State of Illinois.

In aid to the blind, the government grants to the state an amount equal to half the assistance payment to each individual up to the federal total of \$40 per month; also approximately one-half the cost of administering the state plan

The total number of blind in Illinois in February 1941 was 7688, of which 2281 were in Cook County and 5407 downstate.

In aid to dependent children, the government grants to the state an amount equal to one-half the cost of the assistance for each dependent child up to the federal total of \$18 for the first child, \$12 for the second and each additional child, and pays approximately one-half the cost of administering the state plan.

In this state we have a mother's pension passed in 1911. A total of 7453 mother's pensions were issued in Illinois during February for the care of 16,492 children (4014 children in Cook County).

The Old Age Assistance has no doubt shown the greatest activity of any of the categories in its organization and administration. In the month of February 1941 there were 143,482 applicants certified for assistance. It is probable that few people realize what it costs to serve that number of aged persons. During the year 1940 assistance granted to this group required almost double the amount of money that it took to operate all the other 27 state Public Welfare Institutions with their 55,000 inmates and 12 divisions, and other services of the Department of Public Welfare.

The Department of Public Welfare operates these 27 institutions and all their services for just under seventeen million dollars a year. The Old Age Assistance alone cost almost \$30,000,000 during the fiscal year ended June 30, 1939. At the present rate of increase in expenditures, Old Age Assistance will soon cost substantially twice the amount of money it takes to operate the rest of the Department of Public Welfare. The general trend in the history of the Division has been toward a larger number of recipients at a larger average per month.

The trends in the population and their affect on Old Age Assistance program are increasing, because the number of persons in the state 65 years of age and over is increasing. The aged of the state number over 421,000 in 1930; today there are more than 515,000 persons 65 years of age and over. It is estimated that in 1960 there will be 931,000 persons 65 or over. Each aged person is a potential applicant for Old Age Assistance.

The Division continues to be faced with two major problems in the area of eligibility and

service, namely (1) the question of medical care, and (2) how to administer it.

The Division of Old Age Assistance has partially met the medical needs of the recipients. The degree to which these needs can be met within the present Old Age Assistance Act is definitely limited. The federal Government matches dollar for dollar the states funds for assistance only when payments are made in cash direct to recipients. It will not match funds paid by the Division to anyone other than a recipient. The state is also limited to the extent to which it can meet medical care needs because of the specification in the Old Age Assistance Act. In this instance the Department of Public Welfare of the State of Illinois and the Advisory Committee of the Illinois State Medical Society are busy attempting to amplify a program for medical care for this group within the present statute. We are, however, confronted with the following limitations in regard to providing medical care. The facts are:

1. Payments to professional practitioners and vendors cannot be guaranteed by the state agency.

2. The amount of payment is limited by the maximum award of \$40 per month, i.e., if a recipient's basic award as determined by his need for food, shelter, clothing, fuel, etc., is \$32 per month, the amount budgeted for medical care cannot exceed \$8.00 per month.

3. There can be no control of the kind or cost of medication or supplies purchased by the recipient. Even though a change of award may be based on a given need for an approved medication, the recipient may, when he receives his grant, use it for another form of medication.

In more instances when the payment of the medical fee is made direct to the recipient it is retained by him or her as a part of his monthly grant, by which instance the physician is not paid for his medical services.

It is generally conceded by the majority of people who have studied the practical application of the Social Security Act, that if it is to achieve the things it was designed to accomplish, supplementary legislation, either federal or state, will be required to make the Act more flexible and to provide additional funds before a program for good medical care can be instituted.

It is stated that the Social Security Board is

planning to propose amendments to Title I of the Social Security Act.

1. These changes concerning medical care would permit direct payment by the Assistance Agency to a practitioner or vendor for medical services or supplies given to a recipient of Old Age Assistance. A fund for medical care would be established by the state by allocating a maximum of \$1.50 per month per recipient, with the federal government matching half of the amount. The law would be implemented by rules and regulations established by the Social Security Board which would define medical care in very liberal terms and which might include care in public hospitals and convalescent homes.

At present the federal government adds to the state's allocation for Old Age Assistance five per cent of this total sum, to be used for administrative costs. This would be changed so that matching for administrative cost will be on the same basis as matching for assistance payments or

Appropriation of state funds, unmatched by federal funds, to provide for medical care and to be used to pay the source of medical aid direct, under a fee-for-service plan. This would also help to solve the problem in Illinois. However, the probability of this is doubtful at the present time because of our taxes which by reason of relief and Old Age Assistance are prohibitive.

In the interim the Division of Old Age Assistance of the State Department of Public Welfare is trying to cooperate with the medical profession in Illinois by sending the recipient a notice to the effect that the extra amount of money in his grant for that month is for the purpose of paying his physician for the services he has rendered. It is hoped that by this method it will be possible for the physician to be remunerated for the medical service he has delivered.

It is the consensus of opinion that one of the chief objectives of the Social Security Act was to provide its clients with the necessities of life, which should unquestionably include proper medical care. Thus the problem of how to provide good medical care to Social Security clients is rapidly becoming a major question with the Department of Public Welfare of most of our states.

While the requirements for medical care for these three categories may differ somewhat in detail, in a general way they can be very well

provided for under one carefully organized program which would give special consideration to the needs of each category. The practical application of principles governing medical care in rural and urban communities with the available facilities will necessarily need to be carefully developed.

The very valuable information and experience that have been collected during the past seven years in some of the best organized metropolitan and rural programs for the medical care of the indigent should be invaluable in helping to provide a workable program.

In reviewing the incidence of disability among social Security clients experience demonstrates that it is more frequently due to diseases of the cardiovascular, respiratory, gastro-intestinal and neurological systems, arthritis, injuries, fractures, malignancy of the skin, gastro-intestinal and genito-urinary tracts, malnutrition, diseases of the skin, bones, eye, ear and mouth. Statistics also indicate that one out of every two persons sixty-five years of age or over has some chronic ailment or physical disability, and that one out of every eight in the Old Age Assistance group is bedridden or requires considerable care from others. It should likewise be noted that the morbidity rate is high; that illness is unpredictable as is the duration of care.

In a survey of a large series of a group of these cases in New York City they classified them into three groups, (1) those that required medical care for diagnosis and treatment, whether in a hospital, office or clinic; (2) those who needed, under medical direction, unskilled care by an attendant or member of the family; (3) those who needed chiefly skilled nursing care under medical direction.

My experience during the past seven years as Chairman of the Advisory Committee of the Chicago Medical Society to the Chicago Relief Administration has been that the best medical care is provided when the client can choose his physician and thereby maintain the patient-physician relationship. I also believe that because of the age of this group, their illnesses, infirmities, poor vision and hardships of transportation, the physician's office should be used in preference to clinics when possible for ambulatory patients; that clinics should be used only when physicians or advisory committee recommend such for special diagnostic work.

It is my belief that there should be an organized medical care program to meet the special needs of clients of the Social Security Act; that these programs should be drafted by a joint committee consisting of representatives of the Divisions of the Department of Public Welfare and a carefully selected advisory committee of the State Medical Society; that a special administration unit of the Department of Public Welfare should be responsible for administering the program on an efficient basis.

The program should provide:

For the acutely ill:

1. Hospital care
2. Ambulatory care by family physicians. Clinics only when referred by physician or committee
3. Home care including physician and visiting nurse service
4. Drugs, special diets and appliances

For the chronically ill:

1. Institutional care
2. Ambulatory care
3. Home care including physician and visiting nurse service
4. Drugs, special diets and appliances

For convalescent care:

1. Institutional convalescent care
2. Home convalescent care

Dental care should be provided on a selective basis.

In closing I wish to express my appreciation to Mr. Fletcher C. Kettle, Superintendent of the Division of Old Age Assistance of the State of Illinois; Miss Pearl Bierman, Medical Social Consultant, Department of Public Welfare, State of Illinois; Mr. Wallace Clark, Assistant in the Division of Old Age Assistance.

In conclusion:

1. It is my opinion that there should be a program for medical care of Social Security clients.

2. There should be free choice of physicians.

3. That the Social Security Act should be changed to make the administration of this program possible.

4. That said program should be supervised by an Advisory Committee of the State Medical Society.

30 N. Michigan Avenue

DISCUSSION

Question: Do you think there is any special program that will work down in southern Illinois without a lot of work on the part of the local physicians?

Dr. Phifer: My answer to that question is yes. Either of the present public assistance programs in this state will work in any community providing the physicians rendering medical service to the clients cooperate by following the rules and regulations that govern these programs. We should remember that all of these recipients are indigent regardless of the classification. In providing these programs the objective was to provide for the necessities of life, namely, food, clothing, shelter and medical care. These programs are all based on legislative action which defines the recipients, how these necessities are to be provided, and the amount of money for a given time. It likewise states how they shall be administered, and presupposes that they will have an efficient business administration. The majority of them are controlled programs. They must necessarily be governed by policies which regulate and control their expenditures. The amount of clerical work required of the medical profession varies with the types of program, and also the procedure for remuneration. The compensation for medical service is based on indigent care. The legislative act governing the program may complicate the flexibility of the administrative body. This is especially true with the Social Security Act. In each of these programs I would like to see all the recipients have free choice of physicians. Participation in these programs should be optional with the physician. It is my desire to set up a Medical Advisory Committee in each county of the state. All medical problems pertinent to these programs in that county should be referred to this Committee. These county committees should coordinate through the State Central Committee.

Question: Does the Old Age Assistance have any way of checking up to see whether these people spend their money for medical care?

Dr. Phifer: They try to do so. I would like to repeat that the Social Security Act definitely states that the money must be paid to the client and to no one else. The latter is not satisfactory either to the members of the medical profession, the Department of Public Welfare or to the members of the Social Security Board. We are informed that the latter is contemplating some change in the Social Security Act that will make possible the payment for medical service direct to the physician.

I would like at this time to introduce Miss Pearl Bierman, Medical Social Consultant of the Department of Public Welfare of the State of Illinois. I will ask her to continue this discussion.

Miss Bierman: The Social Security Act provides that it is the state's responsibility to determine the client's needs. Once having determined that need, we make an unconditional cash payment to him. If he wants to spend that money all in one area that is his responsibility. There is nothing we can do about

insisting that he pay any one person rather than another.

Question: What happens if the physician reports that this money was not paid to him?

Miss Bierman: Then we assume that the client does not have a medical need and we change the amount given him.

CORONARY DISEASE AND THE DOCTOR

O. P. J. FALK, M.D.

ST. LOUIS

That coronary disease is taking a disproportionate toll from the ranks of medical men is the impression obtained by many of us from our experience with doctor patients and contacts. This impression is strongly confirmed by mounting statistical evidence. Life Extension Examiners¹ report a general increase of 114% in coronary deaths among men over a seven year period. Coronary mortality among physicians during this same period rose 240%, more than twice the general male increase. The average mortality age has not increased sufficiently during the past decade to account for such a startling increase, and it is questionable whether there has been sufficient increase in diagnostic acumen to account altogether for this striking change. There is reason to believe that the early part of the last decade was influenced by the fashion in diagnostic trends, because strangely enough a separate classification for coronary occlusion or thrombosis does not appear in A.M.A. summaries until 1934. Previous to this time, coronary deaths were included under "angina pectoris," or "other diseases of the heart." Just what are the factors concerned in this general increase of coronary disease? Why is our profession particularly susceptible? Is it perhaps that we are subjected to a greater degree of unrelenting strain and responsibility? Are the less vigorous physical living habits of today detrimental to our coronary welfare? Is irregular rest with the attendant fatigue that so characterizes the physician's lot a significant factor? What role is played by the increased use of tobacco? Of what importance are nutritional factors in general and our habits of eating in particular? Are we directing proper attention to the matter of conserving our hearts by using our heads?

Are we avoiding or at least minimizing such influences as may invite early cardiovascular decay? Such considerations as these are indeed thought provoking and should serve to arouse us from a state of fatalistic resignation to an attitude of thoughtful inquiry into the lives and habits; into the physical, mental, and emotional hazards encountered by the average physician in the course of his professional career.

Typical case report

A 51 year old physician presented himself during the past month for examination and advice for a rather typical angina of effort of 2 or 3 years duration. Although the objective findings were essentially negative, the character of the pain, its distribution, its relationship to effort and stress justified the diagnosis of coronary disease with angina of effort. A half hours' conference revealed the following errors of omission and commission to which he was needlessly subjecting himself.

1. He had noted improvement with dietary restriction and coincidental weight loss a year previously. This he failed to heed and was enjoying a high caloric diet with large meals and incidental regain of weight with aggravation of his anginal pains.
2. He failed to follow through the observation that curtailment of cigarette smoking had helped him appreciably during one extended period of time.
3. He had noted that long drives increased his attacks, yet he continued to make them without thought of being driven or making his extended journeys by railroad.
4. He was the tense type of motorist — he chafed at the bit at stop and go signs, and always drove up to a stop sign instead of coasting up to it. He had never practised relaxed driving.
5. His garage situation was such that it entailed considerable manipulation to get his car out of the garage in the morning, and usually resulted in bringing on an anginal pain, but he never thought of leaving his car in the driveway over night. In other words he thought more of his car than of his heart.
6. He was a high-strung type of individual who over-reacted to circumstances. He admitted that a triple bromide tablet which he had occasion to take on 2 or 3 occasions seemed to smooth out the day for him and diminished the number of attacks. Yet he never thought of taking a mild sedative regularly.
7. He volunteered the statement that he wished the week contained more Sundays. He stated that he stayed in bed an hour later on Sunday and that seemed to improve the situation in spite of the fact that the day would oft entail considerable work. Confronted with his disease, how logical it would have been for him to *make* more Sundays for himself, by changing the routine of his life to include a longer rest in the morning. In other words he lived well but not wisely.

From the Department of Internal Medicine of the St. Louis University School of Medicine.

Read before General Session of Illinois State Medical Society, May 22, 1941, Chicago

Observations similar to the above have been encountered frequently in interviewing physicians. This emphasizes the importance of halting the "all-out" activity of the average physician, after he has acquired the anginal syndrome, as well as indicating the rationale of an attenuated program as middle life approaches, in an effort to prevent coronary disease. It would seem logical to make a survey of the social, vocational, and emotional life of Doctors, and make such adjustments as would seem rational in the interest of their coronary welfare.

Statistics indicate that 40% of all physicians are destined to die of heart disease, and of that number half will develop some phase of coronary insufficiency. Of the 3633 deaths among A.M.A. members in 1940, 40% were caused by heart disease, of which 46% were of coronary origin.

The following table portrays a brief survey of the changes that have taken place in the last decade alone.

CAUSES OF DEATH AMONG PHYSICIANS

Year	Average Age	Total Deaths	All Cardiac Diseases	% of Total	Coronary	% of Cardiac
1940	66.3	3633	1515	41%	691	46%
1939	66.1	3879	1583	40%	676	42%
1938	65.6	3768	1491	39%	588	39%
1937	65.4	3398	1358	37%	387	28%
1936	64.5	3581	1374	38%	318	23%
1935	64.2	3491	1343	38%	366	28%
1934	64.3	3393	1131	38%	256	19%
1933	64.4	3354	1351	33%	107	9%
1932	64.1	3142	1101	38%	127	11%
1931	63.8	2952	1065	39%	114	10%
1930	63.7	2943	1059	35%	109	10%

Careful analysis of this table shows that there has been a 50% increase in cardiac deaths among physicians in the decade between 1930 and 1940, although the average age at death has only increased $2\frac{1}{2}$ years (63.7 to 66.3). Contrasted with this 50% increase from general cardiac causes, is an apparent 600% increase in coronary types (109 in 1930 to 691 in 1940). That this tremendous increase is more apparent than real, and was influenced by a more accurate diagnostic trend toward the middle of the decade, is indicated by the fact that a separate column for coronary thrombosis or occlusion does not appear until 1934, before which all the recognized coronary deaths were designated merely as "angina pectoris." However the last five years, during which this condition has been more generally recognized, shows a steady yearly increase totaling 117% (318 to 691 cases) in this latter five year period. It is doubtful whether there has

been any appreciable advance in diagnostic accuracy during this last half decade.

Are there any attenuating influences that might affect this mounting toll from coronary disease, or is it due entirely to the inescapable consequence of senescence in an aging group? This latter assumption can be ruled out by the fact that doctors are not living significantly longer, as indicated by the table. That the fashion in diagnostic trend helps mold these statistics is undoubtedly true, but I do not believe that it adequately explains the undeniable coronary trend of the past five years in particular.

Present Day Concept of the Pathogenesis of Atherosclerosis: — Whatever the cause, atherosclerosis of the vascular system is certainly a form of tissue degeneration. Deposition of calcium in injured tissue is probably a protective mechanism to safeguard the strength of these tissues, and as such is a munificent act of nature. The deposition of cholesterol however, in early atherosclerosis is not protective and may lay the foundation for ultimate disaster. The work of Timothy Leary² strongly suggests that metabolic deterioration is an important factor in the production of these atherosclerotic changes. It is evident today that a multiplicity of nutritional and metabolic influences; as well as the cumulative traumata of life, superimposed upon a vulnerable hereditary tendency, are all contributing factors. The solution of this problem has not been given by any convincing set of experiments, but when the answer is found, life will almost certainly be further prolonged. The part played by *nutrition* in the development of vigorous resistance and life extension may be of equal importance to heredity, according to the observations of Sherman³ who believes that with the addition of food rich in calcium and protective vitamins, the years of active life might be increased 10%, which means about six years. Experimentally it has been shown that a higher than average calcium intake is conducive to better than average health. With a calcium rich diet, in observations over a long period of years, made on white rats, whose metabolism closely resembles that of man, Sherman found that there is an improvement in the utilization of food, better growth, greater adult vitality and a longer period between the attainment of maturity and the onset of senility — with a proportionate increase

in the length of life. It would seem logical to assume that a scientifically planned diet would go a long way toward delaying the ravages of age.

Irvine H. Page⁴ in discussing the nature of the chemical changes occurring in atheromatosis, concludes that at least two factors may assist in producing human atherosclerosis. One of these is lipemia, which appears to be particularly important in diabetes and nephrosis. The other factor or factors act in the cells of the arteries themselves, and appear to be initiated, for example, by the strain of prolonged hypertension.

General Factors Significant in the Increase of Coronary Disease. M. C. Winteritz⁵ who has been a careful observer and student of coronary sclerosis, feels that coronary disease is not the result of any single factor alone, but represents the summation of all the injuries and stresses of life, including infection, sudden strain, emotional shocks, nutritional defect and certain toxic influences. Sir Thomas Lewis maintains that it is the repeated constrictions, the result of repeated stresses, that eventually traumatize the coronary vessels and produce occlusive changes. Additional factors that suggest themselves as significant include the aging of the population, the generally lessened physical activity, the increased use of tobacco, the greater prevalence of the anxiety state, and the increased incidence of overweight, along with better diagnosis and more accurate reporting. The importance of the great economic crisis with its attendant anxiety, which has been so prevalent during this past decade is probably an important factor. Tobacco is known to produce vaso-constriction in the periphery and there is reason to believe that it may have similar action on the coronaries. This may well become a determining factor in the production of acute occlusion in a person with coronary sclerosis, whose coronary reserve is already greatly diminished. English, Willius and Beckson⁶, from an analysis of 1000 coronary cases, report a greater incidence of coronary disease among smokers, especially the group below 50 years of age. The greatest incidence was among the excessive smokers. Raymond Pearl's⁷ study indicated that expectation of life of non-smokers exceeded that of smokers, and that average longevity decreased progressively with increasing degrees of smoking.

It is said that a man is as old as his arteries, but would it not be equally sound to say that he

is as old as his vision or his imagination? Stieglitz⁸ writes "there are many with presbyopic vision who retain the imagination and the enthusiasm of youth." He goes on to say that it must be remembered that the aged are the consequence of aging, and that the pathogenesis of senescence starts in youth, when measures should be taken to anticipate the hazards that are bound to come along the path through life. More can be accomplished for the aging than for the aged.

Accumulating evidence points to the possibility that certain of the atherosclerotic changes occurring in coronary vessels of middle aged subjects may not be the result of a progressive deterioration, but may be an actual acquired disease of the arteries, influenced by certain nutritional and environmental factors. Hurzthal⁹ states that atherosclerosis is not necessarily due to senility, but that metabolic, toxic and pressure factors may exert a provocative influence. Cholesterol increases are noted in diabetes and in hypothyroidism, in both of which the incidence of atherosclerosis is increased. Ravinovitch¹⁰ has reported that 85% of diabetics developed atherosclerotic changes in 5 years on the high fat regime that was in vogue during the previous decade, but that with the low fat, higher carbohydrate regime now prevalent, only 28% developed demonstrable arterial changes in a five year period. The observations of Leary are suggestive evidence that nutritional factors, as influenced by the type of diet, may very likely play a role in the production of premature atherosclerosis, so frequently the cause of the tragic, unheralded coronary episodes occurring in the prime of life. It is possible that thyroid extract, potassium iodide and lipo-caic may influence the absorption of cholesterol from blood vessel walls according to the observations of Page⁴. Murata and Katoaka¹¹ and also Liebig¹² found that simultaneous administration of thyroid along with feeding of cholesterol to rabbits prevented deposition of lipids in the aorta. Turner¹³ showed that potassium iodide, as well as thyroid, exerted a protective action, and furthermore prevented the hypercholesterolemia that usually occurred and that there was a relationship between the development of atherosclerosis and hypercholesterolemia. Page⁴ states that iodine is not unique in its ability to prevent deposition of lipids, but that large doses of potassium thiocyanate and lipo-caic are also reported to be similarly effective in

experimental animals. No evidence is at hand to decide whether iodides are of any value in man, and such medication is as yet entirely on an empirical basis, although sanctioned by time honored clinical practice.

About 30% of the population is overweight, and obesity is conceded to be a contributing factor in the production of coronary disease and myocardial degeneration.

The approach to the solution of the coronary problem is predicated upon factors known to be concerned with the pathogenesis and progression of coronary atherosclerosis. This approach is based upon sound principles of well balanced living, with emphasis on moderation, equanimity, and conservation of energy through the middle and later decades of life.

The Problem of Combating Fatigue. Although we cannot hope to pursue an active career of service and accomplishment without experiencing fatigue, we must nevertheless bear in mind that a well balanced plan of life calls for adequate compensation, and the only compensation for normal fatigue is rest. Irregular rest may not be as important as inadequate total hours of rest, in accounting for the familiar "tired doctor" whose hours of rest are so uncertain and so likely to be interrupted. The doctor's life not only requires ample vacation periods and the cultivation of a hobby, but it calls for brief periods of complete mental and physical relaxation that should be snatched from the pressure of the daily routine. Fatigue should be minimized by the elimination of non-essential work. It would seem advisable to dispense as far as possible, with such things as routine evening hospital rounds and unnecessary evening calls. We should avail ourselves of the telephone for handling many of the necessary details of case management. When evening office hours are essential, a brief relaxation period should break the long day of unrelenting work. An extra hour of rest in bed in the morning, following a particularly trying day or an interrupted night's sleep, is extremely helpful and can be utilized as an additional reading period. Mastering the art of driving a motor car without tension means the sparing of much valuable energy.

The Exercise Problem. The average weekly routine of most physicians leaves little time for regular periods of adequate exercise. The time-

consuming golf game is all too frequently impractical for many of us. While golf is certainly an ideal form of exercise, there may be substituted equally beneficial outdoor activities such as horseback riding, badminton or regular outdoor walking. It is interesting to speculate on just what influence the replacement of man's former necessity for walking may be having on the increase in coronary disease that we are confronted with today.

Nutritional Factors. It is doubtful whether the irregularity of meals so characteristic of the doctor's life is particularly harmful. Hunger does not pile up waste products. But eating hurriedly and working immediately afterwards is admittedly harmful. The evening office hour, following the principle meal of the day, so often the doctor's lot, very possibly presents a tangible hazard to his coronary destiny. Attention to adequate calcium and vitamin intake is of conceded importance. Naturally the problem of overweight should be largely controlled by the minimum fat and moderate carbohydrate diet that seems justified by current thought on the optimum nutritional needs of middle and later life. It would seem particularly important to eat sparingly when under physical and mental stress.

Judicious Sedation. It is difficult to overemphasize the value of stilling the tempests of a particularly stormy day in the life of the physician possessed of a highly nervous temperament. This measure is all the more important where the anginal syndrome is already present. Ten or fifteen grains of bromide or a quarter grain of phenobarbital will iron out many an otherwise ruffled day. When fatigue mounts up to the point that it prevents restful sleep, an occasional barbiturate is extremely helpful, although I am strongly opposed to the habitual use of any such drug. Not infrequently a prolonged warm bath with a hot drink at bedtime will suffice to produce more restful sleep.

The Value of Selectiveness. There is too little satisfaction and too much grief connected with the continued management of certain difficult, introspective or uncooperative patients to justify the effort put forth in carrying them along. The results are rarely worth the toll taken from our valuable store of energy. The same is true of

the person who is always in a hurry (until he gets into the office). Many of us have learned that people who have most to do and really carry responsibility are likely to be the most understanding of our own time problems.

SUMMARY AND CONCLUSIONS

Statistics indicate that the mortality from coronary disease is mounting steadily, and that this trend is particularly evident among members of the medical profession itself. That this coronary destiny may not be the inevitable toll of an exacting and stressful professional life, but that it may be amenable to the influence of determinable factors, constitutes the constructive optimistic philosophy of this discussion. The hope that some modification of the apparent sentence passed upon us by destiny might be attained by a change in our mode of living and working, as middle life approaches, seems not beyond the possibility of realization. At the advent of middle age, all loads should be lightened, including fewer hours of application to duty, the elimination of non-essential activities, the cultivation of tranquility and deliberation of action, moderation in eating and rational dietary balance; a sensible attitude concerning tobacco and alcohol, the cultivation of friends and hobbies, more frequent periods of physical rest and mental relaxation along with appropriate recreation of the less strenuous sort thereby avoiding sudden and unaccustomed strain on the heart. Such precautions as these seem logical measures to follow for conserving cardiac reserve. Furthermore, it is felt that the adoption of a more tranquil and protective philosophy of life might even serve to neutralize the influence of an unfavorable heredity or a hyperreacting temperament, so that one might reasonably hope to postpone, if not actually prevent, some of the tragic episodes of coronary disease so frequently encountered in the world of today.

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REMOVAL OF THYROID GLANDS EFFECTIVE IN 2 CASES OF DIABETES INSIPIDUS

Two out of 3 patients whose thyroid glands were removed as a means of treating diabetes insipidus, a comparatively rare disease marked by excessive thirst and profuse and frequent passage of urine containing no sugar, have been relieved of the conditions since the operation was performed more than five years ago, Harry Blotner, M.D., and Elliott C. Cutler, M.D., Boston, report in *The Journal of the American Medical Association* for June 21.

The two men explain that available knowledge indicates "that the thyroid gland is a factor in maintaining water balance and possibly plays a role in the regulation of the intake and output of fluid in patients with diabetes insipidus. It appeared of value to apply this knowledge clinically in the treatment of diabetes insipidus. Consequently, total thyroidectomy was performed in 1935 on 3 patients with diabetes insipidus. This paper reports the results obtained on these patients after a five year interval."

The condition in the 2 relieved patients, men of 27 and 29 years of age was associated with postencephalitic Parkinson's disease (shaking palsy following inflammation of the brain). In the case of the third patient, a woman of 66, who received no relief, there appeared to be no precipitating cause for the disease. The two physicians believe that accessory thyroid tissue is present in this woman, inasmuch as the thyroidectomy had none of the effects that usually follow the operation.

Uterine Bleeding—Functional uterine bleeding rests not upon the basis of disease in the uterus itself, but upon faulty function of the ovary, usually improper ovulation. There are extrinsic factors which also affect the ovarian function and in individual patients with functional uterine bleeding there is usually not a single factor but a combination of both intrinsic and extrinsic factors.

A distinction should be made between initial and acquired uterine bleeding and it is in the latter category that the extrinsic factors will usually be in predominance.—*Long, New Orleans M. & S. J., Oct. '40.*

GENERAL PRINCIPLES OF BEHAVIOR PROBLEMS IN CHILDREN

BERT I. BEVERLY, M. D.

OAK PARK

It may seem like a far cry from the scientific discussion of arthritis you have just heard to a consideration of the mental hygiene of childhood. Let me remind you that all of those symptoms which are not due to organic disease are signs of a psychologic maladjustment. This pointless statement becomes important when we remember that outstanding and authoritative physicians tell us that up to 50% of the hospital beds in America are filled with patients who do not have organic disease but have psychological maladjustments ("nervous breakdowns"). Let me further remind you that it is generally agreed that these emotional difficulties have their origin in childhood. No one ever became "nervous" after growing up. If we are to get anywhere in the prevention of these conditions, it will be through working out different attitudes towards children and new principles of child guidance. A justification for trying out some new ideas and different conceptions of child management is emphasized by a consideration of the outlook for the children in this country who are 14 years of age and under. Over one million of them will develop mental illness so severe that they will have to be confined in a state institution for a part of their lives. Over one half million will develop behavior difficulties so in conflict with the law that they will be incarcerated in penitentiaries. Untold millions of them will have "nervous breakdowns" so serious that they will be incapacitated for months to years of their lives but will not have to go to state hospitals. The most of them will get married. It has been stated by many individuals, and denied by none, that 80% of marriages are not completely harmonious.

It is not difficult to understand the general principles of the growth and development of children. Let us briefly describe them. Children are born with potentialities for development which determine, in a general way, their growth patterns. The general stature (size), for instance, that a baby will have when he grows up is largely determined before birth. It depends

primarily upon his race and immediate ancestors. In order to reach that maximum development with the minimum of danger, the child requires an adequate amount of the proper kind of food and good physical care. If these essentials are not received, rickets, anemia, malnutrition and a lowered resistance to disease may result. These are signs of abnormal physical growth.

In an analogous manner potentialities for the development of intelligence are present at birth. The general intellectual capacity and intelligence characteristics of a person are determined first of all by his heredity. The stimulation of the growth and development of intelligence is influenced by the way the child is reared. Attention, affection and good physical care, with opportunities for play alone and with other children, when he is old enough, followed later by educational advantages in school are the environmental factors which stimulate intellectual growth. If these conditions are not provided, the child's ability to think may not develop as rapidly or as well as it should; he may not be as bright as he should be.

The third potentiality for development which is present at birth is represented in emotions. Just as a child grows physically and intellectually according to fixed patterns, he grows emotionally. From the moment of birth an individual responds to every situation in terms of feeling and action. In feelings and emotions we see the manifestation of instincts. As such they may be traced back to earliest mankind. Deeply buried in the unconscious mind, they give rise to the wishes and strivings of life. The fulfillment of those wishes and strivings gives rise to pleasures and satisfaction.

There is already present at birth a well developed and functioning mechanism for emotional response. Every sensation is pleasant or unpleasant to the baby and he responds accordingly. During the first weeks of life at least behavior is almost entirely automatic. The baby acts the way he feels. As the brain develops and experiences are encountered, this behavior is altered and we see the beginning of habit formation. In that advance appears one of the most remarkable characteristics of the human mind — the ability of the baby to adapt himself to his environment.

If one places a newly born child on a pillow and rapidly lowers it, so as to give a sensation of

falling, the child thrusts his arms forward, all of his muscles become tense, and he cries. The same reaction is elicited by loud noises (after the first day or two, or as soon as the mucous is absorbed from the middle ear), sudden jarring of the bed, hunger and pain. Within the first few days, if not at the outset, the same response is evoked by restriction of movements. In other words, we see that the baby protests against unpleasant experience by crying. These responses may be considered as emanating from the instinct of self-preservation.

The response described above continues throughout life. This crying of the baby becomes the temper tantrum of the older child and a part of the life-long fight for independence. As such it represents some of the strongest impulses responsible for human behavior. Each individual thinks more of himself than of anyone else in the world — with, however, certain exceptions to this general statement which will be described later. Sudden loud noises continue to disturb individuals throughout life. The same is true of the sense of falling and restriction of movements.

In a child's early infancy it is impossible to recognize all of the primary emotional responses, or to distinguish one from another. The cry caused by the sensation of falling, for instance, as has been pointed out by Mandel Sherman, cannot be distinguished from that occasioned by loud noises. As the baby grows and emotional patterns develop, however, it is possible to perceive different emotional responses and the conditions which stimulate them. We find that under certain conditions the child feels scared, resentful or hungry and cries accordingly. The demand for love and attention is evident from the beginning.

With exception of the fears occasioned by loud noises, sense of falling and restriction of movements, specific fears are not inherited. The mechanism for response present from birth, however, is accompanied with a feeling of fear. This response is stimulated by any threat to the preservation of the individual. If one sees an automobile coming toward him and there is danger that he cannot get out of the way, he feels scared. Uncertainty stimulates fear. It has caused part of the apprehension which most of us have felt because of economic conditions for many years. The seriousness of the depression has not fright-

ened people nearly as much as its uncertainty. How long will it last and where will it end? Are we headed towards Communism, Fascism or some other "ism?" Until these questions are answered, apprehension will continue. Whenever children are surrounded by uncertainty they are scared. In an analogous manner, lack of security and confidence stimulate fear; uncertainty, lack of security and need for confidence are threats to self-preservation.

In growing up, children hate anybody or anything that interferes with their pleasures. Adults who do not like to use the word "hate" may substitute the term "resent." From earliest infancy the baby is disturbed (anxious, frightened and resentful) when he does not receive sufficient love and security. More concrete evidence of this is observed between the sixth and eighth months of life. The baby then protests when a stranger picks him up. He actually is remonstrating at any attempt to separate him from his mother or family. He cries for the same reason when examined by the physician rather than because of any inoculations administered at the time.

Under certain conditions the baby feels hungry. This feeling is caused by the need of the body for food and, like the emotional response described, is important from the standpoint of self-preservation. It is impossible to keep from becoming hungry. In the same way, feelings of fear and hate cannot be prevented when the conditions which stimulate them are present.

The emotional responses already discussed have to do with unpleasant feelings. If we return to the nursery and observe the baby further, we find that under other conditions he has pleasant feelings; he derives pleasures from other experiences. He will stop crying when fondled, unless he is in pain. He derives pleasure from many sensations, especially from the normal functions of the gastro-intestinal tract; i. e., sucking, the satisfaction of hunger and elimination. Those who doubt the pleasure derived from eating and elimination can be readily convinced by observing babies. There is no more perfect picture of satisfaction and contentment than that of a baby with a full stomach, who has nursed as long as he likes, and is free of colic. A similar picture is seen following a bowel movement.

Since the emotional demands of the baby are

supplied by his mother, we see him completely dependent upon her and becoming attached to her emotionally. This emotional reaction gradually changes with growth. As the baby's mind develops and he is able to grasp objects, sit up, walk, talk, etc., we see him change from a passive, dependent chap to a more independent, active individual. This behavior is motivated by curiosity which is one of the most important characteristics of the mind. It is the basis for all learning and makes it possible for a child to slowly adapt himself to his environment. This curiosity is first of all about himself and then the world about him. It gives rise to play which is probably more important, from an educational standpoint. As the young child rapidly loses his complete dependence and becomes an aggressive youngster interested in play, his reactions make up what has been called the "almighty" stage of emotional growth. This period continues until the physiological changes incident to puberty manifest themselves. During this time, boys and girls are interested in themselves — their own problems, exploration, adventure and play. At this time they are not interested in such abstract norms as justice, honesty, truthfulness, personal appearance and consideration for others — the concepts which are so important to adults. They have neither developed sufficient intelligence to understand nor reached the level of emotional growth to appreciate these adult standards of behavior. Let me pause to assure you they will accept those norms of things when they are old enough, especially if they are left alone. There is not sufficient time to describe the details of emotional growth.

Infants are born with potentialities for physical, intellectual and emotional growth and develop according to general patterns which cannot be changed. In spite of this fact, which has been known and accepted for centuries, adults proceed to try and change or radically alter all of the normal emotional reactions of children from the time they are born. Let's see if that is true. Even though a baby has been a part of mother for nine months, the first thing we do at birth is to completely remove the infant from her. The baby has been fed continuously for nine months, but at birth he must eat every four hours (usually). He must eat a certain number of minutes and if he dares suck beyond that period, he is placed in a straight jacket. The

amount of food he should eat is commonly determined in an arbitrary manner. His bowels must move at 8:30 A. M. and if they do not move at that time there is great distress in the home. We often see young mothers, often under medical guidance, spending one-fourth of their time forcing food into one end of the gastrointestinal tract and painfully washing it out of the other. This program of infant care is carried out without any consideration for the emotional reactions of the baby, and in spite of the fact that habits of emotional response are forming from birth.

By the time a child reaches three years of age, he is convinced that all of his normal emotions are wrong or bad. Let's see if that is true. Suppose a three-year-old shows that impulse of independence (liberty), which is one of the strongest impulses back of human behavior, to the point of talking back. He is called impudent. "No child can talk back to me." Why shouldn't children talk back? What is a child told who says he is scared? Most commonly he is laughed at. "Shame on you: you should never be scared." Yet fear is one of the important primary emotions — instinctive in character and physiological in nature. Adults are scared every day, especially if they are driving automobiles. Next, what happens if the boy or girl shows that other normal emotion that distresses the human mind so much, namely, hate, and says he hates his brother (as all normal children do, at times). He receives a more severe admonition: "You must love your little brother." (I will not say what the boy or girl thinks or feels then). Appetite which is the physiological component of hunger has probably been ruined a long time before the age of three is reached. Finally, let us suppose this little boy or girl does or says something which is associated in the mind of the parent with that "terrible" subject, sex. The child is scared into believing that is bad and something he must never think about. In a similar manner, children are convinced they are bad before they are five years of age. Also many children are convinced they are dumb and an unbelievable percentage are made to feel they are not liked by that time. These are some of the reasons for the generally accepted statement that the conditions which give rise to psychological maladjustments ("nervousness") in adults have their origin during the first three

to five years of life.

If the above observations are true, the logical question is: What is important in the rearing of children? I think we have gone a long way in answering that question. There are three essentials for normal or optimum mental growth: security, confidence and an opportunity to develop self-reliance.

Security is the feeling which is given a child from birth by parents who are entirely satisfied with their offspring. The child has security who is accepted as he is; no alterations being necessary. It has been described as a feeling of "all rightness" on the part of the baby. In older children it may be described in this way; no matter what my child does, he can come to us (his parents) and discuss it without the slightest fear of criticism, humiliation or betrayal of confidence. In addition, he is assured that he will receive any aid his parents can give, if necessary, to help him out of any difficult situation that may arise. As the child enters school, he should have security in that school and his teachers. As he grows up, he should find security in his community and nation. Finally, as an adult, he should have security in his own ability to meet new and difficult situations in life and make a satisfactory adjustment to them.

In an analogous manner, a child should have confidence. Confidence in whom? First of all, in his parents. Parents normally think their children are superior to all others and should convince them of that fact. Later, confidence should be found in the school, community, church, nation and eventually in the individual's own ability.

Habits begin to develop at birth. As stated above, the baby responds to all situations in terms of feeling and action. The way he responds determines the kind of habits that are formed. The first habits that are formed have to do with eating, sleeping and elimination. In fact, there is a sleep schedule already present at birth. The baby sleeps a few hours, then awakens and cries. He wants food for hunger and, in addition, sucks for emotional gratification. His nutritional and emotional needs having been satisfied, he goes back to sleep. This cycle of sleeping and waking forms the logical basis for the feeding schedule. It is usually 3, 3½, or 4 hour intervals. The baby develops food habits, then, according to his individual needs, both physical and mental.

How do children develop the third essential to normal emotional growth — self-reliance? By self-reliance we mean the ability of an individual to meet situations — especially new and difficult ones — and make a successful adjustment to them. Since all behavior is in terms of habit, our problem is one of habit formation. The habits formed during infancy are most important and have a great deal of influence upon the kind of a personality the baby will have when he grows up.

More security is given a baby from breast feeding than in any other way; both physical and mental growth are stimulated more by it than by any other food or method of feeding. The infant can be allowed to take as much food as he likes. (If he is artificially fed it is assumed that it is of the proper proportions.) He can suck as long as he likes; there is no danger of harm from thumb-sucking during the first 3 to 5 years of life. The habit disappears before 18 months of age if the baby receives adequate security and attention.

How much fondling should a baby receive? The answer is: as much as the individual infant needs. He should be held and fondled at the feeding period (a comfortable rocking chair for the mother is desirable) until signs of fatigue appear. He should then be placed in his bed and left alone. A baby should not be used as an emotional outlet for parents, relatives and friends.

Babies quickly learn to take liquid from a bottle and solid food from a teaspoon if these foodstuffs are given early in life — before 4 months of age. By the time they are six months of age, babies like to put things in their mouths. This is the best time to begin offering the child milk from a cup. If it is given every day and the infant is allowed to take as much as he likes, he will often voluntarily wean himself from the bottle at about one year of age; he will voluntarily give up sucking in favor of the mature habit of eating all his food from a cup or a teaspoon. If he desires to take the bottle for a longer period, there is no objection to it.

The development of toilet habits can begin at about nine months of age. The baby may be placed on a comfortable toilet at the time he usually has a bowel movement. The best toilet is one that rests on the floor, so built that the child can rest his feet on the floor or on a sup-

port. He cannot be expected to make an effort if he is scared by placing him on an insecure toilet with his legs outstretched. Mothers should not try too hard to develop toilet habits in their children; babies will acquire the habit more quickly if force is not used.

Parents should be warned against the giving of enemas which are seldom necessary and often harmful, psychologically. Abnormal emotional disturbances commonly result from too much stimulation of the rectal region with painful enemas. The baby who is receiving the proper kind of food will not be constipated. Failure to have bowel movements every day is not the cause of illness, as formerly thought. It does not make any difference whether a baby has a bowel movement every day or every two or three days. Daily bowel movements are good habits for older children. In the case of older children, however, these habits can be developed by voluntary effort. Children develop them when they want to.

Children will take full responsibility for their food habits by the time they are 15 months of age. It is only necessary to offer them three meals per day, allow them to feed themselves and eat as much and as long as they like. Every child will eat a sufficient amount of food for health and gain if given the proper kind of food and left entirely alone.

A child can dress himself at two years of age. He cannot be expected to tie a bow knot or put on very complicated clothing in a manner that will always meet the approval of mother.

Children will usually take full responsibility for their toilet habits when they are about 2½ years of age. Boys and girls will stop wetting their beds as soon as they want to. They succeed as soon as they wish to please their parents and make an effort to do so. Restriction of fluids and getting children up at night do little good. The best results are obtained when the child is reminded occasionally that he does not have to wet the bed any more, given praise for any success, and ignoring his failures.

During the third year children begin to desire playmates. They should be allowed this young companionship for the discipline as well as the pleasure it affords. In this way they develop the habit of getting along with one another. In play they develop habits of caution and learn to do things for themselves.

There is not time to continue this important discussion of the ways and means of helping children develop habits for self-reliance. We have, however, covered the most important period and indicated the general principles to be followed. Give a child security, confidence and allow him to develop habits of self-reliance and he has the best chance of normal mental growth and success in life.

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THE ORTHOPAEDIC TREATMENT OF INFANTILE PARALYSIS

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This is the fourth article of a series

Orthopaedic treatment should be started as soon as the diagnosis of infantile paralysis is proved or strongly suspected. In addition to the family doctor or internist, an orthopaedic surgeon should be summoned immediately. The success of the immediate orthopaedic treatment depends upon meticulous care and unrelenting observation. Time is the essence of success in treatment.

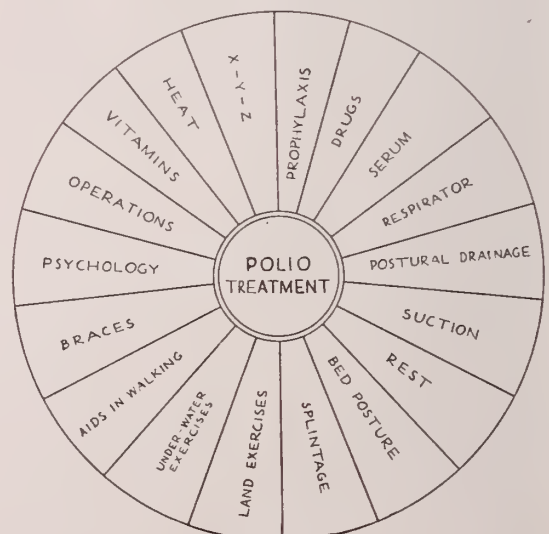


Figure 1

Pie crust diagram of chief factors used in treatment of poliomyelitis (Lewin — "Orthopedic Surgery for Nurses," 3rd Edition, W. B. Saunders Company, 1940.)

Rest — Rest is the one great essential in the immediate care. This must not only be complete and absolute, but must be managed so that the muscles placed at rest will be kept in a position of neutral pull. This is the most important factor in the prevention of later deformities and in minimizing residual disabilities. Complete rest is of such great importance during the early days of inflammation of the component parts of the central nervous system, that it is usually far better to keep the child in bed at home, when the disease is first suspected, than it is to move him any appreciable distance to a hospital, especially if the trip may be rough. The fatigue and agitation which may result are harmful, especially in "bulbar" cases.

Deformity is largely preventable. In order to achieve this end, muscles must be protected from stretching and fatigue. A muscle placed at rest in a position of relaxation, with its attachments approximated will recover sooner and more completely than will another muscle placed under tension.

Under no circumstances are massage, exercises or electrical stimulation to be used during the early acute stage. Not until the acute period is over should massage, induced heat, and the various forms of muscle training be started. In general, the accepted dividing line between the acute and convalescent stages is the cessation of muscle and skin tenderness.

Application of External Heat. — Extremities should be kept warm at all times. If necessary bed socks or stockings should be worn. Applied heat will relieve muscle and skin tenderness. Heat will cause muscle pain to disappear more readily, and shorten the duration of the acute period.

In the acute stage Miss Kenny employs hot applications. Woolen strips saturated with boiling water are "fished out" with a pole and run through a wringer, twice. These are applied from one joint to another, but not over the joint, in order to permit passive and active movements. These dressings are protected with oiled silk and more dry warm wool. They are changed every half hour during the first twenty-four or forty-eight hours. This is continued twenty-

four hours a day. After the extremely sensitive period has passed, the procedure is carried out from 8 A.M. to 8 P.M. and then only every two hours. The fomentations gradually cool.

Small rolls of towel material are placed under the knees. Gentle passive exercises are given, but never to the point of pain. These are carried out during the first two days of the sensitive stage. The patient's activities are directed and concentrated in the area of the tendon where movement is to be expected.

After two passive movements, one active movement is attempted.

Miss Kenny's theory of the situation in acute polio is based upon:

- I. "Muscle Spasm"
- II. "Incoordination"
 - Due to pain.
 - Due to substitution of muscle function.
- III. "Mental Alienation"
 - The patient forgets to perform normal muscle function.
 - The patient loses the idea of making muscles contract.

Her procedure in correcting the situation includes:

- I. No splints of any kind except a foot board and the splinting that is inherent in the fomentations.
- II. Hot fomentations.
 - Very hot — to relax spasm — at intervals of from one-half hour to two hours from 8 A.M. to 8 P.M.
- III. Special muscle re-education.
 - Concentration on insertions of muscles.
- IV. Avoidance of fatigue.
- V. Maintenance of proper positions.
- VI. Complete joint motion (possible because of less pain and no contractures).

Excellent results are claimed for this method. The most important practical benefits derived from this treatment are: rapid relief from pain and the prevention of contractures.

Primary Splinting: Any recognized type of splint which will maintain the correct neutral position can be used. In early poliomyelitis it is imperative to individualize the patients and to apply the measures appropriate to each case. This, however, may be limited to a certain extent by the type of equipment at hand.

THE PURPOSES OF SPLINTING are:

1. To balance muscles and thereby retain neutrality of muscle pull.
2. To protect weakened muscles.
3. To support limbs or other parts of the body.

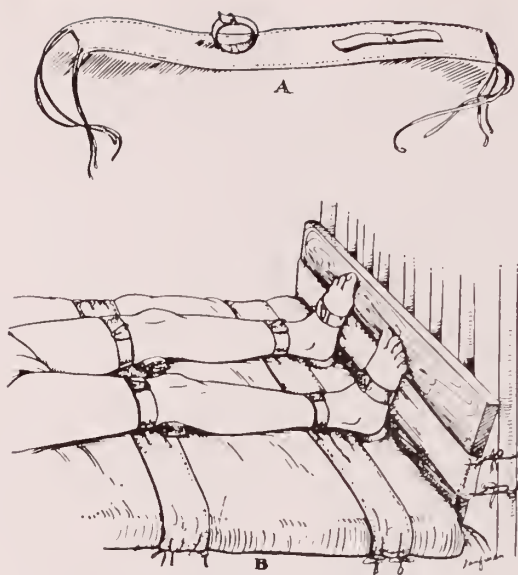


Figure 2

Michael Reese Fabric Restraint-Splint (Reproduced, Courtesy "Journal of American Medical Association")

A. Showing bandage-splint made of heavy cloth with two short strips of cloth attached. One strip made into loop and secured with safety pin. Note ties at ends of cloth.

B. Three restraint and bandage splints in position. Note rolls under knees and cotton "doughnuts" under heels. Pads for the soles of the feet are not shown.

The combination of this bandage and Carrell's Bradford frame with hinged restraint is excellent.

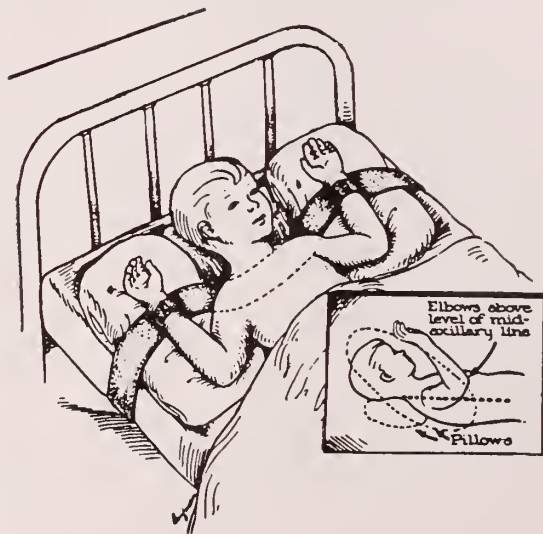


Figure 3

Michael Reese Fabric Restraint-Splint (Reproduced, Courtesy "Journal of American Medical Association") Splint applied to the upper extremities maintaining the physiological position of neutral muscle pull. Note the pillows, the bandage and wristlets. The insert to the right below indicates the relationship of the arm to the patient's body.

Positions Favoring Optimum Return Of Muscle Power. — There are certain definite positions that are most desirable for the future usefulness of the limbs and trunk, a few of which are given here.

Fingers and Thumbs. — The proper position is that assumed in holding a drinking glass. The opponens pollicis and abductor brevis pollicis muscles abduct the thumb at right angle from the palm and hold it in the position of opposition to the little finger. Without the use of these muscles, it is difficult to pick up a glass of water, to hold a pencil, or to sew.

Wrist. — The wrist should be placed in slight hyperextension (dorsiflexion).

Forearm. — The positions of supination and pronation of the forearm are varied in accordance with the muscle weakness. The neutral position which protects both pronators and supinators is midway between pronation and supination.

Elbow. — The elbow should be flexed to a right angle. If the triceps is weak, it should be favored by keeping the elbow extended beyond a right angle. (This muscle is important in the use of crutches.)

Moving and Turning the Patient. — During the first few weeks, it is advisable to move the patient as little as possible. It is important, however, to prevent bedsores. The mother should be taught how to turn the patient on his side for short periods in order to relieve pressure on the back.

If the patient is on a straight Bradford frame, he may be turned on his face, with his feet hanging over the edge of the frame, provided the frame is elevated on blocks of wood which are high enough to prevent pressure of the toes on the bed.

The relation of the bed and bedside-table should be changed so that the patient will not repeatedly bend his trunk to the same side. Constant turning toward the same side may contribute to torticollis or scoliosis (if there is weakness of neck, abdominal or back muscles). Repeated reaching to the same side to turn the dial of a radio may cause imbalance of the trunk muscles.

The child on a frame may be carried to any room in the house. He may rest on top of the kitchen table, on a bench in front of the window

or on the porch. He may even be taken out of doors on top of a coaster wagon. The head of the frame may be tilted at an angle, allowing the child to look about more easily, provided it is always in a safe position. An opening in the canvas, in the region of the buttocks, makes it possible for the patient to use the bedpan without disturbing his position.

Turning the Patient. — In turning the poliomyelitic patient, twisting or torsion must be avoided. He should be handled as though he were a rigid object, like a poker which cannot be bent. The pelvic and shoulder girdles must turn as one unit. The nurses or attendants must not "wring" the patient as though he were a towel. A little traction and turning at the same time is often gratifying to the patient. The Stryker turning frame is very useful. The patient should be turned occasionally to prevent the formation of kidney stones.

Nursing Care. — The patient must be kept in bed, with physical and mental quiet. To preserve rigidity and prevent sagging, several boards or a wood frame may be placed under one or two mattresses. An "illuminated" cradle should be used to keep the coverings off the feet and the limbs warm. The room should not be brightly lighted. The patient should be handled with extreme gentleness, since the limbs are often excessively tender and sensitive to movement. A many-handled canvas litter may

bowels must be kept open, but not with cathartics. Catheterization may be necessary.

Care of Patient Immediately After the Febrile Stage. — After first aid measures such as splinting and heat have been applied, and other supportive measures and specific treatment have been instituted, the temperature will usually revert to normal, i.e. within a week or ten days. At this time other measures can be instituted to alleviate residual muscle tenderness, and one can continue with the further treatment.

Treatment by Warm Sea Salt Baths. — Warm sea salt baths alleviate muscle and nerve pain. In some instances, they may be started very cautiously within seven days after the onset of the disease.

Completion of Physical Examination. — It is often necessary for the physician to wait until most of the muscle tenderness has subsided before he can complete the physical examination and determine the extent of muscle involvement. Thus a more accurate picture of the future outcome can be obtained. Because absolute rest is so imperative in the very early stages, it is much better to postpone a complete muscle examination until soreness has largely disappeared. Irreparable harm can be done by the energetic use of active physical therapy measures too early, in an attempt to prevent paralysis. The prevention of further paralysis lies mainly in the early maintenance of neutral muscle positions. Only after a complete picture of the seriousness of the muscle involvement is obtained can one decide what further therapeutic measures should be employed.

Physical Therapy After the Acute Stage. — The present trend is toward less exercise, less activity, less massage, and less active treatment of all kinds. More attention is being directed to the prevention of deformities by means of rest in proper positions, with constant supervision of the most minute details.

The less patients are handled in the early stages, the better are the results. Usually the early treatment-sessions do not last over ten minutes and no more than three counts of an exercise are given to any individual muscle.

The majority of the patients are kept off their feet from ten to twelve months before they are allowed to attempt to stand or walk even with the support of braces and crutches. If, however, a patient is very slightly affected, his ac-

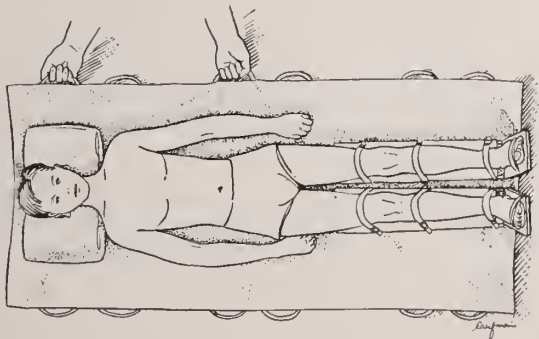


Figure 4

Canvas sheet with numerous handles to assist in lifting the patient from the bed to the cart, to the tub and back to bed.

be placed under the mattress to assist in transportation. Ice-bags applied to the back of the neck and to the spine sometimes relieve restlessness and pain. Sponging of the body should be done gently. The diet should be bland. The

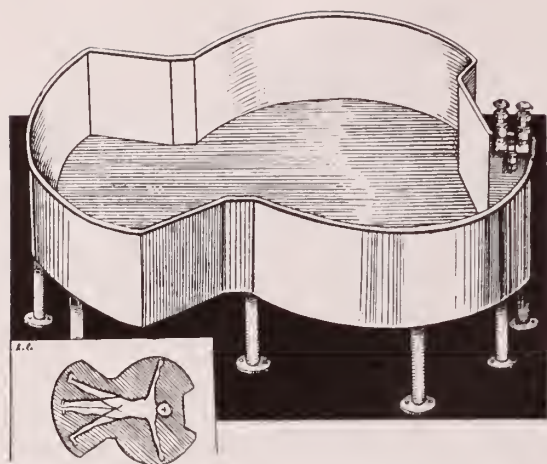


Figure 5

Lewin modification of Hubbard tub for under-water exercises.

tivities will depend largely on the return of power to the muscles of his trunk, pelvis and lower extremities. He would probably be kept off his feet at least six months.

Muscle Training. — Following an accurate muscle diagnosis and as soon as all soreness of the limbs has disappeared, active muscle training is begun with exercises, for five or ten minutes once a day. The aim is to prevent atrophy of the muscles through disuse and to aid in restoring the function of these muscles by training unaffected nerves to carry on the work of the affected ones, so far as possible.

Overuse of an affected limb is worse than disuse. Early sitting and standing, and constant efforts to move the muscles, urged by some cultists and unrecognized practitioners of physical therapy, are dangerous. There are no magical short cuts to recovery.

Assisted Movements. — Muscle training consists in aiding the patient to perform a certain movement, in the hope of stimulating an impulse for the movement from the brain to the weakened or paralyzed muscle. The patient is told to send a voluntary impulse to contract a muscle, and the limb is placed in such a position that gravity will impel performance, or else the movement is assisted by hand. "A movement a day keeps adhesions away." In the first year following paralysis involving one or both legs, the best results follow non-weight-bearing exercises combined with little, if any, walking. In selected cases, however, the upright position

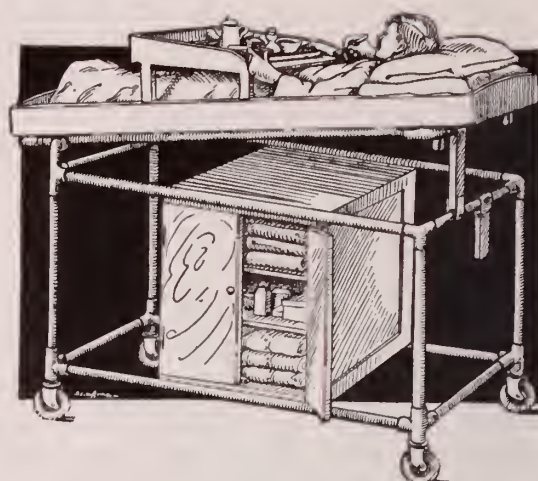


Figure 6

Wagon-cart for home care of poliomyelitis (McAloon).

with protected weight bearing and restricted walking have certain advantages over protracted inactivity.

Underwater treatment has been an important advance in handling poliomyelitis patients. Lowman allows the patient to begin underwater movements as early as the twenty-first day, and to walk in deep water at the end of four or five weeks. The patient is submerged up to his neck. This improves his morale by eliminating pain, fear and anxiety, and by giving him pleasure. It restores balance and instills courage. The general health, sleep, and appetite improve. Nervousness diminishes. The buoyancy of the water minimizes fatigue of the weakened muscles. Ability to swim is a most valuable asset. Swimming should be part of the school drill. It is a sport in which the crippled child can equal others. Unsupervised swimming may cause much harm.

The Principles Of Massage. — Light massage, if given by a person especially trained in the after-care of infantile paralysis, is valuable. Plastring offers the following rules:

- (1) Never cause pain.
- (2) Make the patient comfortable by the use of pillows or rolls to furnish support in order that the muscles may be relaxed.
- (3) Use talcum powder* to make the strokes smooth.
- (4) Use gentle but firm slow steady pressure in all strokes.
- (5) In the extremities, make all strokes toward the heart.

*I prefer a skin oil.

(6) Be sure that there are no constricting bands, such as garters, or rolled-up sleeves, about the part being worked on.

(7) Treat each muscle group separately.

(8) Do not cause fatigue. Massage that is too heavy or too long is as tiring as too much exercise. From 5 to 10 minutes is sufficient for each limb. Good massage never wearies a patient. Massage improves the circulation and the tone of muscles.

Braces. — A brace is a mechanical support whose purpose is to maintain a certain position of a portion of the body. A splint, strictly speaking, is a type of brace. Splints are used early in the acute phase of the disease to maintain neutral muscle position, to prevent later deformity and to diminish pain. Braces, on the other hand, are used during the chronic or residual phase to supplement a deficiency in function caused by weakness or paralysis of muscles, and to prevent further deformity by furnishing adequate support and protection. Braces may also be used to correct deformity in selected cases.

Braces perform their greatest service either during the interval between the stage of maximum paralysis and such time as corrective operation can be performed, or after manipulation or orthopaedic surgery has accomplished its final degree of correction.

The minimal requirements of an efficient brace are: (1) to furnish the highest degree of stability commensurate with the physical state of the patient, (2) to protect against imbalance caused by unequal pull of normal muscles against paralytic muscles, (3) to prevent further deformity caused by this imbalance, (4) to be of light enough construction to permit the patient to use it without undue fatigue, (5) to avoid pressure areas on the skin or bony prominences, and (6) to be within the financial reach of the patient or of an agency that will furnish it, without sacrificing durability.

Indications for Surgical Treatment. — The purposes of operation are to: improve muscle function, improve static stability, correct deformities, and make it possible for the patient to discard braces. In general, operations on poliomyelitis patients include osteotomies, arthrodeses, fusions, resections of bone, plastic operations and tendon plastics and transplantations.

One should try to avoid major operations before the age of ten or twelve years. As a rule,

no extensive operations should be performed within a year after the acute attack.

Operations on soft tissues include tendon-release, tendon lengthening, tendon transplantation, tenodesis, muscle-release and transplantation, silk ligament suspension and fascial-release and transplantation.

Operations on bones include osteotomy, tendon fixation, arthrodesis, arrest of epiphyseal growth, bone lengthening and bone shortening.

REMARKS

The six most important considerations concerning poliomyelitis are: first, a reliable test for the early diagnosis, i.e., before paralysis occurs; second, the isolation, identification and complete information concerning the virus; third, a protective vaccine serum or other material; fourth, serum or other substances that can be given before paralysis has occurred; fifth, maintenance of joints in positions of neutral muscle pull; sixth, the application of external heat.

One may reasonably hope that, by improved knowledge, the diagnosis will be made in the pre-paralytic stage, and in future epidemics, lives will be saved, deformities will be prevented and disability will be minimized.

PATHOGENESIS OF SUB-ACUTE BACTERIAL ENDOCARDITIS*

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Like tuberculosis of the meninges, bacterial endocarditis is a disease which is secondary to an area of infection elsewhere in the body; unlike the story of tuberculosis the conception of the PRIMARY infection in sub-acute bacterial endocarditis has remained vague. One of several micro-organisms occasionally causes infection of the endocardium but there is no disagreement as to the infectious agent of the disease which we know as "Sub-acute bacterial endocarditis" and which the Europeans so aptly call "sepsis lenta." *Streptococcus viridans* has long been recognized as the immediate cause of this disease but very little study has been made of the mechanism by which this organism reaches the heart. Our teaching has stopped with the enumeration of the

*From the laboratory of Rockford Hospital.

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usual sites of focalization of the causative organism or with the statement that this form of cardiac disease is secondary to "a primary focus elsewhere in the body."

In consideration of the pathogenesis of bacterial endocarditis we can profitably review some of the well established principles of the infectious diseases. Only a very few known organisms — notably *Pasteurella pestis* and *Bacterium tularensis* — are capable of entering the body through the intact skin or mucous membranes, and even they produce a local, though sometimes unrecognized, lesion at the portal of entry. All infections, of organs which are not connected directly with the body surfaces are secondary to infections at the portal of entry, — that is, the portal of entry is an area of infection itself. In those conditions such as syphilis and tularemia in which the pathogenesis is well understood, we speak of the portal of entry as the initial lesion; in other conditions we call it a focus of infection.

THE CAUSATIVE ORGANISM

Most of the green-producing streptococci are harmless saprophytes,¹ but the group which is known as *S. viridans* is capable of causing subacute and chronic infections. *Streptococcus viridans* is not an invasive organism. *Streptococcus viridans* lacks almost entirely in invasive ability and even when it is forced into the blood stream, it is only able to establish itself on vulnerable areas in the vascular system, such as the scarred heart valves of healed rheumatic fever, congenital heart lesions or areas damaged from other causes. The natural habitat of the green-producing streptococci is the oral and pharyngeal cavities. Some of the normal flora of this habitat naturally pass on into the intestinal tract but no other part of the body is seeded so heavily and constantly as the mouth and the throat. *S. viridans* prefers to live in a moderately reduced oxygen tension; therefore it is found in luxuriant growth in the crypts of the tonsils, pyorrheal sacs and other natural and artificial pockets which are not well aerated. The gum margins are heavily seeded and this organism eventually reaches the apex of almost all diseased teeth. The route to the apical tissue may be through cavitation of the enamel and dentine, thence through the pulp tissue, or it may be via pyorrheal infection — i.e. separation of the peridental membrane, strangulation of the pulp and direct ex-

tension from the depth of the pyorrheal pocket.² Many competent bacteriologic surveys have established the regular presence of *S. viridans* in the apical tissue of diseased teeth, both deciduous and permanent.^{3, 4, 5} It is present whether or not granuloma or abscess can be demonstrated by X-ray or other means. Such infected alveoli are potential portals of entry into the general circulation.

THE RELATION OF TRAUMA TO INFECTED ALVEOLI

Traumatism of these foci causes the entrance of bacteria into the blood stream in a percentage of cases dependent largely upon the severity of the alveolar disease and the degree of the trauma. Richards⁶ produced bacteremia by massage of infected gums in 3 to 17 cases. Okell and Elliott,⁷ and Palmer and Kempf⁸ have demonstrated bacteremia following dental operations. In 1935 Okell and Elliott reported the first comprehensive study of this problem. In 75% of patients with severe alveolar infection undergoing multiple extractions they reported the presence of bacteremia as determined by the culture taken immediately after the operation. Palmer and Kempf studied a group of 82 cases who had one or not more than two teeth extracted and reported 17% of the blood cultures taken immediately after the operation positive with *S. viridans* present in all but one of the cultures. The great majority of organisms which gain entrance in this manner survive only momentarily. The circulation is very rapidly cleared of the invader, presumably by the reticulo-endothelial system so that it is only blood cultures taken very soon following massage or dental trauma which yield positive results. In cultures taken ten minutes later no growth takes place. These findings are evidence of the low virulence of *S. viridans* and also suggest that this germ may be dispersed from the foci in the jaw into the blood stream purely by mechanical forces. If bacterial invasion played much part one would expect the bacteremia to be maintained at least for short periods. Okell and Elliott also reported that 10.9% of individuals with very severe oral sepsis had blood cultures which contained *Streptococcus viridans* before any surgery was done. This has been spoken of as a "physiological leak" of organisms into the blood stream; but however descriptive, this is a bad term. The condition is

not physiological because it is dependent upon diseased gum tissue. Organisms which gain entrance to the blood stream through such a leak are constantly being removed and if there is no vulnerable spot in the vascular system no secondary infection occurs. Since it is known that dispersion into the blood stream occurs in proportion to the severity of the infection and the extent of the trauma, one is permitted to wonder if the amount of trauma incident to chewing is not sufficient to disperse organisms from these very badly diseased jaws.

THE DISTANT INFECTION

During the seconds or minutes which *S. viridans* circulates following dispersion from the primary focus, it may lodge on a scarred valve in the rheumatic patient or upon an area of congenital defect in another patient and the chills and sepsis which follow heralds the onset of the disease "Sub-acute bacterial endocarditis." In 1939 Palmer and Kempf reported 4 cases of this disease in which the onset was immediately incident to dental manipulation. Autopsy studies were included.

Two of these cases which were previously reported in detail are briefly abstracted here: 1. A white business man, 44 years of age with known congenital heart disease since early childhood had a large number of teeth extracted at one sitting. Except for limitation of physical activity he was well to this time. His teeth were removed because of iritis. Sepsis dated immediately from the dental operation and ended fatally after a one year course. Blood cultures were repeatedly positive for *Streptococcus viridans*. Patent ductus arteriosus with engrafted bacterial endocarditis of the pulmonary valve, mycotic aneurysm of the intra-cardiac portion of the pulmonary artery, acute fibrinous pericarditis and multiple aneurysms of the pulmonary arteries were found. 2. A white woman 35 years old with mitral stenosis of rheumatic origin was under treatment for oral sepsis. She had gone to the dentist feeling well. Procaine hydrochloride was injected into the gums during the course of the treatment. She returned home, experienced a chill and a very septic course followed. *S. viridans* was present in the blood cultures. Emaciation, anemia and embolic phenomena resulted and she died after a course of six months duration. The autopsy revealed typical vegetative

lesions engrafted upon a scarred and stenotic mitral valve.

Secondary localization of *Streptococcus viridans* may occur in parts of the vascular system other than the heart. The typical picture of sepsis lenta (without the physical findings of endocarditis) has been reported⁹ in a case who presented at autopsy vegetative lesions engrafted upon an area of atheromatous damage in the abdominal aorta. The author has seen the same type of localization in a cerebral artery in a fatal case which followed tooth extraction.

The editors of the Year Book of General Medicine have suggested that "The administration of sulfapyridine for 48 hrs. before and after each dental treatment or extraction seems worthy of trial." This would seem to be excellent practice in any case of vascular disease who must undergo dental manipulation. One would not expect the drug to prevent the mechanical dispersion — and we have some evidence in another group of bacteriological studies to be reported later, that this is true — but it is reasonable to believe that the danger of implantation of the circulating organisms on the heart valves might be lessened. It is erroneous to reason that the drug would not be effective in prevention of localization because it has not been effective in treatment of endocarditis. In treating the disease, one has to deal with *S. viridans* colonies well protected by a thick fibrinous vegetation and fibrin has been shown to be a very effective barrier to all of the sulfonamide drugs.¹⁰

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BILATERAL OOPHORECTOMY IN EARLY PREGNANCY

Report of A Case

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GENESEO

A thirty one year old farmer's wife was seen one night with all the symptoms and physical findings of an acute abdomen. Her previous history was negative except that four years previously she had delivered a seven months macerated foetus the cause of which was not determined; the Kahn and Wasserman were negative. A year later she became pregnant again and went to full term and delivered a living male child.

A tentative diagnosis of ruptured ectopic pregnancy was made, an exploratory operation performed and a twisted ovarian cyst removed. Disease of the opposite ovary was present and it too was removed. The uterus was small and in view of the fact that her last menstrual period was then only two weeks overdue, pregnancy was questionable. Recovery from the operation was uneventful.

About one month later pregnancy was still questionable although she complained of nausea and vomiting. She was next seen about four and one-half months following her last menses; she had by this time noted quickening, the uterus was enlarged to four and one-half months and Hegars and Chadwicks signs were positive, but no definite foetal heart sounds were heard, although there was a loud funic souffle. Urine and blood pressure was negative. No tests were made on the urine for pregnancy at any time because of expense.

Pregnancy continued uneventfully. A few days before the expected confinement date, she reported marked itching and burning about the vulva. Examination showed a very acute vaginitis and vulvitis which proved to be a yeast infection. This gradually subsided under treatment.

Parturition took place about eleven days after the expected confinement date. She delivered a normal female child spontaneously. The placenta was grossly normal. Lactation was very slight but this was true with the first baby.

About a year later, February 1941, this patient was again seen: she had been amenorrheic to

date. The uterus was normal as to size shape and resistance and there was no apparent atrophy.

In this case both ovaries were removed March 23, 1940; and her last period had been February 6th. This shows that pregnancy could not have been present more than about thirty-five days (adding ten days to February 6th as probably the earliest possible date of ovulation).

Recently, Seegar and Delfs¹ reported one case from the Johns Hopkins Hospital "from whom all ovarian tissue was removed on the sixty-third day of gestation." Pregnandiol determinations throughout the course of pregnancy in their case were unusually low, the cause of which "cannot at present be evaluated."

Stimulated by the report of their case, communication with Dr. Seegar lead to one pregnandiol determination and this during the last month of pregnancy. This proved to be 61.5 mgm in twenty-four hours, and to quote Dr. Seegar, "is well within the limits of normal and seems to prove conclusively that the placenta is producing the majority of the progesterone."

Conclusions: Some tissue beside the ovaries was responsible for progesterone production in this woman as early as the thirty-fifth day of gestation. This tissue may be placental but it may also be adrenal, since progesterone has been isolated from adrenal extracts.² The presence of pregnandiol in the urine has also been reported from two patients who had an adrenogenital syndrome neither of whom had corpora lutea.³ Small amounts have also been isolated from male urine.

This is probably one of the earliest cases of its kind ever reported. An extensive review of the literature fails to reveal one earlier.^{4, 5}

Further studies will probably bring forth more definite knowledge on this interesting subject.

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GENERAL MEDICINE IN A MENTAL HOSPITAL

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Of the one million beds available in the hospitals of this country, six hundred thousand are occupied by patients suffering from nervous and mental diseases. In the state of Illinois more than thirty thousand patients are daily cared for in the mental hospitals, and this is only a small part of the persons needing care for nervous or mental disorders. We know from the selective service examinations that a high percentage of the number of draftees have to be rejected from military service because of mental disorders. This is unfortunate but it is essential to keep psychopathic, psychoneurotic, feeble-minded, and psychotic persons out of the army.

It is therefore obvious that the problem of mental health in our population is an urgent one from a sociological, economic, as well as from a medical point of view. In spite of the fact that the number of patients seeking help for nervous and mental disorders is steadily growing, the physicians in general practice are often unfamiliar with the work and facilities of the mental hospitals provided by the state. To a large extent this is not the fault of the physician, but rather of the psychiatrists working in the institutions who have formerly isolated themselves from general medicine almost as much as they have isolated their patients from society.

The criticism of S. Weir Mitchel many years ago was that the asylum physicians lived apart from general medicine; and he accused them: "their hospitals are not our hospitals and their ways are not our ways." This is still true in a large number of hospitals. However, the physicians working in the institutions of Illinois have tried for years to bring about a closer relationship between psychiatry and general medicine. As an expression of this, it should be pointed out that during the last four years the Physicians' Association of the Department of Public Welfare has held its meeting in connection with the annual meeting of this society; the good attendance at the last meeting was an example of the interest these physicians are taking in this society.

When I was invited to talk about the work being done at the Elgin State Hospital and to give a general impression of the progress being made by the state institution in medicine, I accepted gladly for two reasons. First, I'm convinced that by closer collaboration of the physicians in outside practice and the psychiatrists working in the state institutions, patients will benefit greatly. Secondly, it gives me the opportunity to express the thanks of the physicians working in the state hospitals to this society, which has assisted in every respect to improve the service in the state hospitals.

There has been a gradual change in the attitude of the state hospital physicians towards their patients. For a long time the chief emphasis was placed on the custodial care of the patients. Nowadays the state hospital, like any general hospital, is working upon the principle that the chief emphasis has to be placed on the rehabilitation and the improvement of the patients and the parole and discharge of as many of them as possible. That we not always succeed in improving our patients or in restoring them to their former health is unfortunate, but I believe this difficulty is common with the men in general medicine, with the surgeon, and all other branches of medicine. The increasing number of paroles, the rising number of discharges, the large number of voluntary admissions all show that the service rendered by the state institutions is improving and that the physicians and the laity have more confidence in their work now than they had many years ago.

The work in a mental hospital is as varied as in any general hospital. We have to deal with the chronic alcoholic as well as with the acute catatonic excitement; with the hysteric patients, as well as with cases of severe melancholia; with the senile and arteriosclerotic dementias and the patients suffering from general paresis; Besides these we have to deal with a large number of cases of manic-depressive psychosis and schizophrenia. Aside from this purely psychiatric work, general medicine plays a great role in the state institutions. As in any general hospital, we are dealing with cardiac diseases and tuberculosis, and we have to fight constantly against the outbreak of infectious diseases. The physical health of our patients is of extreme importance. Before we can even start treating

mental disorders, we have to be certain that the patient is in good physical condition. Very often the physical examination alone will reveal the cause of the psychotic behavior of the patient and how to remedy it.

A twenty-five-year-old girl, colored, was admitted because she had suddenly developed mental symptoms about two weeks prior to her commitment. One morning at four o'clock she complained that her mother had not treated her right, that she herself had led a sinful life; and she began to talk about religion and to preach in a loud, wild fashion. She became hyperactive, played all day and night. In the hospital the patient was irritable, talked constantly, and was disoriented for time and place. She exhibited rhythmic movements in a dance-like manner. The physical examination revealed a large hard tumor in the abdomen. She had a blood pressure of 160/120 and urine showed a 2x albumin. There were many coarse and fine hyaline casts. The blood chemistry revealed an N.P.N. of 116.4, Creatinine content of 3.97, and blood sugar was 91 mg.%. The patient was in very critical condition. Her temperature fluctuated between 101.6 and 103. Her respiration was quite rapid. The diagnosis made was toxic psychosis, caused by uremia, which in turn was due to a large tumor of the uterus, probably pressing on both ureters. She was immediately operated on and a large fibroid tumor of the uterus, pressing on both ureters, was removed. Following this operation, the patient improved rapidly and a week later her psychotic symptoms could not be demonstrated.

K. S., a fifty-three-year-old, white male, was found walking backwards on the streets of some town. He talked irrationally and it was said he made some indecent remarks to women. He was sent to Elgin. On admission to the hospital he was disoriented. Neurological examination showed evidence of an increased intracranial pressure. The reflex changes pointed to a lesion over the left hemisphere. The spinal fluid examination, the chemical constituents of the blood, and x-ray of the skull did not reveal any essential changes. However, the electroencephalogram showed marked disturbance over the left hemisphere, substantiating the neurological findings. There was a predominance of very slow waves over the left side of the brain and discharges of the grand mal type were frequent over the left hemisphere. The operation revealed a large encapsulated hematoma over the left frontal and parietal lobes. The hematoma was completely removed and patient made an uneventful recovery. He is working again in the same mine where he worked previous to commitment.

The electroencephalogram was helpful in the last case in establishing a definite diagnosis. The recording of the brain waves has proven to be of great value in a large variety of mental disorders, and in spite of the fact that it has been

in use at Elgin for less than eighteen months, this instrument is a valuable aid in our diagnostic service, as well as in the field of investigative work.

A twenty-five-year-old secretary was out of work for two years because she complained of dizzy spells. She was treated by many physicians. Her home situation was difficult. She had an alcoholic father, who caused a great deal of discord in the home situation, and she had a fiancé to whom she had been engaged for seven years, and whom she was reluctant to marry. Her dizzy spells interfered with her daily work, so that she had to give up her job. Neurologically, no essential changes could be found, but the electroencephalogram (and only this) showed that the dizzy spells were in fact numerous petit mal attacks of an epileptic nature. The administration of luminal 3/4 gr. t.i.d. caused complete cessation of these spells, and a week after the administration of phenobarbital, the patient was able to resume her work, which she has carried out now, without interruption, for more than a year.

This case is an example of the usefulness of the electroencephalogram in the psychiatric diagnostic instrumentarium. The more modern our facilities and the more highly trained the physicians in the mental hospitals, the better will be the treatment of the patients.

Along with the daily routine, our physicians receive lectures in psychiatry, neurology, pathology, and we try to make each one of them a competent specialist in psychiatry. However, one cannot be a specialist in every field; the large number of patients confined in a mental hospital (in Elgin alone there are more than 5000 patients) present problems of a general medical nature daily, and we are grateful to the help we receive from the physicians in practice who devote a great deal of their time to our consulting service. Each case of tuberculosis is seen by a tuberculosis consultant, each case of heart disease by a cardiologist; every female patient is examined by a gynecologist, etc., all to insure adequate and good medical service.

Each patient in the institution has a complete physical checkup every six months, and I wish this also could be said for persons living outside of institutions.

It is often said that the interest of the physician in medicine is measured by his interest in investigative work which he does in addition to his routine duties. More than thirty papers have been published from the Elgin State Hospital during the last two years. This work is chiefly

concerned with problems in psychiatry. Pathological, biochemical, and psychological investigations are being carried on, insofar as they have connection with problems involved in the care and treatment of psychotic patients.

Nutritional defect states assume an ever-increasingly important role as causative factors of mental disorders. Delirium tremens, Korsakoff's psychosis, alcoholic polyneuritis respond very well to vitamin therapy. Alcohol is only indirectly responsible for these disorders. Biochemical investigations will doubtless help us in understanding many functional mental diseases; and they form an essential part in the study of schizophrenic behavior disorders.

The therapeutic nihilism which dominated psychiatry for a long time was interrupted by the introduction of the shock therapies. These therapeutic procedures, which are much more drastic than any treatment employed before, seemed to open the way for a specific treatment of the mental disorders heretofore only treated by general therapeutic procedures.

It was the first time in medical history that epileptiform convulsions and deep, long-lasting comatose states were used in the treatment of a disease. It was therefore essential to study the effect of these treatments not only from the standpoint of therapeutic results obtained, but also from the viewpoint of possible damage produced by these severe forms of therapy. Animal experiments showed that insulin shock therapy, metrazol convulsive therapy, and electric shock produced definite alterations in the brain. Comparatively the same alterations could be demonstrated in patients who had died several months after metrazol therapy had been discontinued. From our investigations we learned a great deal concerning the clinical handling of our patients and this has led us to a more careful and more sensible way of treatment. Constant revision and constant check of the work we are doing are essential for the advance of state hospital service. Investigative work forms an important part of the hospital duties, and the more it can be increased, the better will be the service rendered to the patients.

I have tried to give you a short outline of the work being done in the mental hospitals today. It is understood that only a few points could be stressed and we know there is much room for improvement.

One of the major problems which confronts us today is the problem of overcrowding. The number of admissions is constantly rising. In order to keep a balance in the number of hospital patients, it is essential to discharge and to parole more patients than was done heretofore, and to return some patients to their families under the care of the family physician even though they may not yet be entirely well. By close collaboration between the hospital and family physician, the patient will not be harmed by an early return to his home, but rather be benefited. His adjustment in the home situation will probably be greatly simplified; we are convinced that the patient, the family physician, as well as the hospital, will gain by this procedure.

I hope I have aroused some interest in the work being done in the mental hospitals of this state and that I have conveyed the impression that we constantly try to improve our therapeutic measures.

May I express my thanks to Dr. Norbury for having suggested this topic of discussion, and thank you for the honor and privilege of talking to you.

THE EYE PROBLEMS IN GRAVES' DISEASE

J. H. MEANS, M.D.

BOSTON

That malady first described by the Englishman Parry in 1815, but generally called after the Irishman Graves, who gave a somewhat more complete description of it in 1835, is characterized by a combination of thyroid and ophthalmic manifestations. For this reason it has been descriptively called exophthalmic goiter.

Nearly always it is regarded, nowadays, as a disease primarily of thyroid origin, and nearly always the therapeutic attack is aimed at the thyroid gland, as being the chief offender.

It is my purpose, today, to suggest that this is perhaps not the most scientifically accurate conception of the disease, and further that an attack upon the thyroid gland is not in every instance the best form of treatment.

From the Thyroid Clinic of the Massachusetts General Hospital, Boston.

Read before Joint Session of Sections on Medicine, Surgery, Public Health and Hygiene, Radiology, Pediatrics, Obstetrics and Gynecology of Illinois State Medical Society, May 21, 1941. Chicago.

As to pathogenesis, it certainly can be said that other endocrine glands than the thyroid are involved; for example the anterior pituitary, also the nervous and reticulo-endothelial systems.¹ The late Dr. A. S. Warthin² emphasized the constitutional and hereditary factors and coined the term "Graves' constitution."

Of course, the ultimate cause of the disease is unknown. Nevertheless sufficient evidence now exists to warrant defining it as a constitutional disturbance involving a complicated hormonal imbalance, having wide-spread effects, in which the thyroid is but one item.

In this imbalance the over-activity of the thyroid is the most familiar and best understood part of the process. The action of the thyroid hormone on general metabolism is well known. The measurement thereof, by determining basal oxygen absorption, is a common diagnostic procedure. The symptoms due directly to hyperthyroidism are easily recognizable.

Also familiar and equally characteristic of the disease, but far less well understood, is the peculiar ophthalmic involvement. It can be asserted on the basis of work, both experimental and clinical, that the eye condition is not a direct result of hyperthyroidism. Rather are they both to be looked upon as individual effects of a wide-spread and fundamental disturbance.

Furthermore, it can be said with considerable assurance that while the symptoms of hyperthyroidism are related to the calorogenic action of the thyroid hormone, the ophthalmic changes are related to changes in water balance which result from altered balance between hormones which produce water storage, such as the thyrotropic hormone of the pituitary, and those which promote discharge of water, such as the thyroid hormone. In considering then the morbid physiology of Graves' disease in toto and in attempting to derive a rational mode of treatment therefrom, it is quite as necessary to take into account the changes in water balance which lead to eye signs as the hypermetabolism which leads to tachycardia, weight loss, sweating and so forth.

Most surgeons and many physicians think that some form of thyroidectomy is the ideal form of treatment for Graves' disease. There is, moreover, no gainsaying that in the majority of cases the results of this procedure are surprisingly good. They are in fact better than, theoretically, they ought to be. It was shown years ago by

Halsted³ that ablation of a large portion of the thyroid was followed by regeneration in the fragment remaining. Of course, not a few patients regenerate thyroid tissue after subtotal thyroidectomy for Graves' disease. Some indeed regrow a goiter as large as the original one. But it is less remarkable that some do this than that many more do not. If the over-acting, hyperplastic thyroid gland is merely a result of the disease, rather than its cause, then a partial removal of it might be expected always to be followed by regeneration of tissue and recurrence of thyrotoxic symptoms. But such is only occasionally the case. In suggesting that thyroidectomy in Graves' disease does more than remove hyperfunctioning thyroid tissue, through quantitatively reducing the output of thyroid hormone, that in fact it serves to break up some sort of vicious hormonal circle, thus permitting the organism to re-establish a normal hormonal balance, Pemberton⁴ has, I think, put us on the trail of a likely explanation for the apparent paradox. In any event, I submit that although the results of subtotal thyroidectomy in the properly iodinated patient with Graves' disease are often excellent, nevertheless, thyroidectomy in this disease is to be classified as symptomatic, not specific treatment. It assuredly is not the ideal treatment, nor do I believe it will be the ultimate treatment. When the nature of the hormonal imbalance, which is the disease, and the causes which bring it into being are identified, then a treatment, probably non-surgical, designed to restore hormonal balance to normal, may become possible.

For the moment, however, we must use the methods now available, and I freely concede that when the full and classic picture of exophthalmic goiter is present and when no special contraindications are present, subtotal thyroidectomy offers the best chance of prompt and permanent relief. It is to be noted, however, that such a therapeutic attack is designed to remove the state of hyperthyroidism or thyrotoxicosis, and thereby remove the symptoms directly resulting from that state. It is not aimed in any specific sense at the eye involvement. Nevertheless, it must further be admitted that in the average case such an attack suffices, and that no treatment aimed specifically at the eyes is required. If the thyrotoxicosis is removed the eyes improve also. No special treatment for them is necessary.

However, there are cases, and these are the occasion for the present communication, in which the situation is quite different, and in which the treatment, I believe, should be quite different.

In contrast to the classic case, in which thyrotoxicosis and eye involvement vary in parallel, there are cases in which the ophthalmopathy and thyrotoxicosis become dissociated and vary independently or in reverse. For example, the eye involvement may be very impressive or severe and the thyrotoxicosis very slight. The eyes may get worse, as the thyrotoxicosis gets better. There may be a progressive ophthalmopathy, perhaps after thyroidectomy, at a time when the patient's thyroid status is one of frank hypothyroidism.

My colleagues and I believe that such cases should be recognized and set apart as representing a definite subspecies of Graves' disease. For them we have been able to invent no better term than Graves' disease with dissociation of thyrotoxicosis and ophthalmopathy. The literature abounds with descriptions of them and various terms have been proposed, none of which seems to us broad enough to include all the cases we think ought to be included*. They probably constitute not over 4 to 5 per cent of the total cases of Graves' disease.

There seems to us little doubt that the ophthalmopathy in this subspecies of Graves' disease may be aggravated by thyroidectomy. Sometimes the cases come to us after thyroidectomy with a story that the eye signs were trivial till the goiter was removed and became progressively worse thereafter. Sometimes we have identified them before thyroidectomy and watched them get worse after. More recently we have identified them and refrained from operating and have convinced ourselves, at least, that we have spared them some ophthalmic mischief by such management.

As to how cases falling in the subspecies may be recognized, we may say that the chief point is that from the beginning the accent is upon the eyes. Often these patients complain of nothing but their eyes. Often they consult first the ophthalmologist, who then refers them to the Thyroid Clinic. The eye symptoms complained

of may be diplopia, tearing, smarting and irritation, swelling of the lids, and perhaps actual protrusion. On examination, edema, injection, chemosis of the conjunctiva, ophthalmoplegia, and epiphora are all more in evidence than the more classic signs of simple proptosis, lid retraction and so forth. The eyes usually look somewhat prominent, but the swollen and angry appearance is what chiefly attracts attention.

When such a picture is encountered, and when in addition thyrotoxic manifestations are minimal or absent, and the thyroid is either slightly or not identifiably enlarged, then, we believe, the classification should be that of Graves' disease with dissociation of thyrotoxicosis and ophthalmopathy; and furthermore the treatment should be designed to safeguard the eyes which constitute in these cases the major therapeutic problem.

A further point in recognition is that, as Hertz has shown, these patients tend to make a superstandard metabolic response to iodine. From a level of plus 15 to plus 20 they may fall to minus 20 or minus 25.

When the classification has been made preoperatively, we believe the therapeutic program should be as follows. Thyroidectomy is contraindicated. It is not necessary for thyrotoxicosis, because there is little if any thyrotoxicosis present. It not only will not benefit the eyes, it may actively harm them.

The role of iodine is somewhat problematical. We have seen such cases improve satisfactorily on prolonged iodine alone. This is difficult to understand for it lowers the metabolism, and lowered metabolism seems definitely inimical to the eyes.

In the production of the ophthalmopathy, it has already been indicated, edema of orbital tissues plays a major role. Thyroid hormone produces diuresis. Therefore thyroid hormone should be beneficial to the eyes, and indeed experience shows that it is. It has been our practice, following H. S. Plummer, to give these patients both iodine and thyroid. Holding the basal metabolic rate as low as possible with iodine, we then give as much thyroid as they can take without becoming thyrotoxic. The metabolic actions of the two agents cancel out, but it is not the metabolic we are after, but rather the diuretic action of the thyroid. Also thyroid

*For example, malignant exophthalmos, progressive exophthalmos following thyroidectomy, exophthalmic ophthalmoplegia, postoperative progressive exophthalmos with low basal metabolic rate.

may exert a beneficial action by inhibiting the action of the pituitary in the production of thyrotropic hormone which acts to increase water storage.

We would go on with this program for so long as the progress was satisfactory, or until it definitely proved inadequate. Very close supervision of the whole situation and particularly of the eyes, should be maintained. Vision, visual fields, exophthalmos, and state of corneae and conjunctivae should all be kept track of. If and when either vision or eyes are in any danger, such palliative procedures as orbital decompression should be promptly resorted to. If thyroidectomy is avoided and the type of management indicated above followed, we believe the necessity for decompression will be rather infrequent. The ophthalmic process is undoubtedly for a considerable time reversible. Later, however, it may go into an irreversible phase for which decompression is the only treatment. When, under these circumstances, decompression is not done soon enough, enucleation may eventually become necessary. The objective is so to manage the case that the development of the irreversible phase is prevented.

Another possibly useful procedure in certain cases is irradiation of the pituitary, on the theory that it is over-active and that its overactivity aggravates the ophthalmopathy. We have used it in but one case in which a definite hemianopsia, thought to be the result of pituitary swelling, was demonstrated. In this case the eyes showed a marked improvement, but whether a matter of cause and effect, or mere chance, we are not prepared to say.

In certain cases when there has been a sudden aggravation in orbital edema, we have observed temporary benefit from the use of diuretics, and in one case from lumbar puncture.

It goes without saying that local protective measures to the eyes should be used as indicated — grease to prevent drying, shields, lid suture and so forth, as advised by the ophthalmologist.

With regard to sympathectomy, which in the past has been advocated as a treatment for malignant exophthalmos, we may say very definitely that we have never seen any good come from it and we are strongly opposed to its use. The fact is that in human exophthalmos there is little, if any, evidence that the sympathetic system plays an important part; and that being

true, there is no reason why sympathectomy should be beneficial.

Finally, it must be observed that the type of ophthalmopathy described may rarely occur in patients having also an important thyrotoxicosis, one which demands treatment per se. When this is the case, we believe that irradiation treatment of the thyroid is less likely to aggravate the eye condition than thyroidectomy, probably because its action is slower and thus permits more gradual hormonal readjustment. The recent work of Soley gives some proof in this connection⁵.

SUMMARY

Attention is drawn to a subspecies of Graves' disease in which the eyes rather than the thyrotoxicosis constitute the major therapeutic problem. Theoretical considerations are touched upon, and methods of diagnosis and treatment are indicated. The points chiefly emphasized are that in this subspecies thyroidectomy is undesirable and thyroid administration, in some cases at least, beneficial.

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In a large group of industrial workers the proportion of the cases of tuberculosis found in a minimal stage has almost trebled since 1929. Moderately advanced cases have decreased slightly and far advanced cases are about one-third the former proportion. This change is explained largely by the fact that in recent years fluoroscopic examinations of the chest (and roentgenograms when indicated) have been made prior to employment and as part of the annual routine examinations of all employees of the Metropolitan Life Insurance Company. From *Bulletin of Met. Life Ins. Co.*

Brown rice, which goes through a less extensive milling process than white rice, contains four times as much vitamin B₁ and three times as much minerals as the white variety.

RECENT PROGRESS IN ESTROGEN THERAPY

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With the rapid progress made in endocrinology during the past decade, numerous pure, potent endocrine principles have been made available for therapeutic use. Of these, none has been more useful to both the specialist and general practitioner than the estrogenic substances.

The availability of crystalline highly active estrogens has been of great benefit to large numbers of patients, particularly those suffering from the menopause, either artificial or spontaneous. Active investigation on improving estrogenic therapy is constantly going on. Progress has been definitely made in two respects; in (1) improving on the natural estrogens by various procedures and (2) devising synthetic preparations. In the first method, there is considered a factor which plays a most important role in improving the efficiency of a known estrogen, that is, delaying absorption from the site of injection. In doing this, the estrogens enter the blood stream at a slow, constant rate, thereby avoiding the rapid excretion and destruction which occur when they enter into the blood stream over a short period of time. It is well known in this respect that other therapeutic agents have an increased efficiency when their absorption is retarded, such as with protamine insulin, adrenalin in oil and numerous others. The method of retarding the absorption of estrogens consists of altering them chemically by combining them with fatty acids to form, for example such compounds as estradiol benzoate and estradiol dipropionate. These substances will induce a more protracted estrus in laboratory animals than the simple estradiol. Of these two esters, the dipropionate will induce a far more persistent estrus response than the benzoate which, in turn, will induce a longer estrus period than estradiol. In the human there is little information available about the rates of absorption of these compounds. There is, however, some evidence that estradiol dipropionate after a single injection is excreted over twice as long a period of time as the benzoate. The advantages of using such preparations are obvious. In the

first place, the therapeutic effect is undoubtedly increased and, secondly, the beneficial effects will be obtained over a greater period of time, thus necessitating less frequent injections.

A compound of estradiol, namely ethynil estradiol has been made available to investigators for some time. This compound retains much of its estrogenic activity when administered by mouth in contrast to the loss of 90 to 95 per cent of the activity of estradiol administered orally. As yet, however, no extensive reports have appeared regarding the use of this compound in therapeutic practices. In regard to estrone, the first crystallized estrogenic substance, esters of this compound have not been found whose efficiency is increased to any appreciable extent over that of estrone.

The absorption of estrogens may be delayed without altering the chemical state of the estrogens but by placing them in a media which is absorbed slowly; thus oil solutions of estrogens are much more efficacious than water solutions when both are administered in single injections. More recently it has been found that placing tablets or crystals of estrogens directly into the tissues of the patient gives rise to slow, constant absorption into the blood stream inasmuch as these dried materials are only slightly soluble in tissue fluids and, for this reason, they are absorbed slowly. Thus, implants of crystals or pellets of 20 to 40 mg. of either estrone or estradiol will induce a therapeutic effect for up to six months or more. It might be stated that other hormone preparations such as testosterone and desoxycorticosterone implanted directly into the tissues are at least four times as efficient as oil solutions. This, then, would be an ideal method of administering estrogens. Tablets or crystals for implantation are not available for purchase at the present time. One of the disadvantages of this form of therapy is the lack of control of the patient, but this is perhaps not so important for the estrogens as it is for such a substance as desoxycorticosterone where overdosage may be fatal. The technic of implantation is not complicated; a small incision is made in the skin followed by blunt dissection of the subcutaneous tissues and the pellets or crystals deposited. Sterility precautions must be strict. Some investigators have used a trocar for the insertion of pellets of the crystalline material directly under the skin.

Recently at the Mercy Hospital Dispensary we have experimented with a new type of estrone preparation. We have administered to patients by injection estrone crystals suspended in an aqueous media. In this instance we were interested in having the crystals suspended in a vehicle which would be rapidly absorbed by the tissues, leaving behind a deposit of crystals. The absorption of estrone in this way would be similar to that from small implants of estrone crystals. In this study we have found that the administration of suspensions of estrone containing 5 mg. per cc. injected at weekly intervals for three weeks results in relief of menopausal symptoms for a period of many weeks after the last injection. The average period of relief was about five weeks, but at least one-fourth of our patients had relief for ten or more weeks after the last injection. We have found that aqueous suspensions are much more efficient than suspensions of estrone in oil. Laboratory work which preceded our clinical trials with these suspensions indicated that the estrus in rats induced by aqueous suspensions of estrone was twice as persistent as with the oil suspension which, in turn, was more protracted than with similar quantities of estrone in oil solution. We have concluded on the basis of clinical and laboratory work that aqueous suspensions of estrone are more efficient than oil solutions of estrone. An additional advantage of the aqueous suspension is the absence of possible sensitivity reactions to oil vehicles.

Attempts to prepare synthetic materials with a high degree of estrogenicity have been quite successful. Of the numerous compounds prepared, the most promising up to the present time is diethylstilbestrol. This substance is a stilbene, not a steroid like the natural estrogens, and is completely synthesized by laboratory procedures. This compound when tested in rats by injection was shown to be 1 to 3 times as potent as estrone. A remarkable property of this substance, however, allows for relatively little loss of activity when it is administered orally. By the oral route, its activity in the rat is about equal to that of estrone injected, in contrast to the activity of estrone by mouth which is only about 5 to 10 per cent of that by injection. The convenience and economy of such an orally active estrogen in therapy is obvious. Numerous

reports have indicated that stilbestrol is an effective estrogenic substance and possesses all of the properties of the natural estrogens. The disadvantage of stilbestrol is the incidence of toxic effects. The percentage of patients reported to develop such toxic effects varies considerably amongst the investigators who have used stilbestrol. On the average, however, it may be stated that about 15 per cent of the patients develop unpleasant reactions, chiefly nausea with vomiting, dizziness and headaches. It has been indicated on the basis of animal investigation that stilbestrol produces damage to various organs such as the liver and bone marrow, but in the human there has been no adequate demonstration by objective evidence that this substance actually produces injury to the tissues in doses which are far larger than those used for therapeutic purposes. It is noteworthy that many of the patients who complain of nausea and vomiting after stilbestrol administration state that they feel as if they were pregnant. For this reason, it might be suggested that the sudden introduction of potent estrogens into the body fluids of the patient induces a reaction similar to that of morning sickness and that no actual pathological changes have taken place. In this connection, it has been observed that post partum women who receive large doses of stilbestrol rarely, if ever, complain of nausea and vomiting. It is therefore possible that these women have been adjusted to large amounts of estrogens and therefore do not react like normal women to the stilbestrol administration. Additional investigations are required, however, before stilbestrol can be pronounced safe for routine use. When and if this substance becomes available, physicians will have a potent estrogen effective by mouth which will be convenient and economical to administer. Its ease of administration may, however, result in promiscuous therapy and harm may arise from this. If the doses in conditions such as the menopause are restricted to about $\frac{1}{2}$ to 1 mg. daily, there appears to be little possibility that toxic manifestations would arise providing the period of administration is not unnecessarily extended. In this regard, estrogens should be administered for several months, after which there is a rest period until the symptoms return. Therapy should be then repeated with a similar course.

We have recently been investigating the therapeutic efficacy of hexestrol which is a modification of stilbestrol. Several reports in the English literature indicate that its properties are similar to stilbestrol but that the incidence of toxic results is fewer. There are no reports available in the American literature up to the present time. As far as I know the present paper is the first in this country to deal with the therapeutic efficiency of hexestrol. Although the study is not completed, I feel safe in stating that hexestrol is about one-fifth as active in the human as stilbestrol; thus with doses of 3 to 5 mg. daily most menopausal patients will obtain satisfactory relief. Inasmuch as this compound is relatively inexpensive, the necessity of giving these dosages is no serious factor. In our experience, the incidence of toxic reactions is about one-half as great as that with stilbestrol and these reactions are relatively mild. It is only occasionally that the nausea and vomiting resulting from hexestrol necessitates cessation of therapy. It appears, therefore, that hexestrol is promising as an efficient economical estrogen. Before definite conclusions should be drawn, however, a considerable amount of evidence concerning the activity, toxicity and therapeutic efficiency of hexestrol is required.

In conclusion it may be stated that scientists have improved upon nature in regard to the estrogenic hormones. By chemical procedures they have devised more potent substances which are more efficient for therapeutic purposes. It is anticipated that within a short time these products will become available for routine use in the practice of medicine.

Thousands of young men are being examined daily for military service and these physical examinations offer the best opportunity this country has ever had to discover a large part of that vast reservoir of unknown, untreated cases of tuberculosis which keeps the White Plague on the march. Routine X-rays for tuberculosis should be given every man called up for Selective Service.—Thomas Parran, M. D., Surg. Gen., U. S. Pub. Health Serv.

All medical students in Argentina in the future must undergo X-ray examination and tuberculin tests on the result of which their permission to study medicine depends.—Schweizer Med. Woch., June 22, 1940. Noted in Tubercle, January, 1941.

RAT-BITE AND HAVERHILL FEVERS

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AND

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SUMNER

Spirillar rat-bite fever occurs only after the bite of some animal, usually the rat. With a few exceptions, such bites also cause the sporadic form of Haverhill fever. The epidemic form of Haverhill fever, so far reported in only two states, is probably caused by contaminated food, milk being suspected in the epidemic in Haverhill, Massachusetts.¹ An accurate bedside diagnosis is usually possible in these diseases. Failure to remember them in obscure febrile conditions will prevent the investigation of several important clinical and laboratory phases of these infections concerning which we are still uncertain. It will also prevent the patient from receiving the proper treatment, neoarsphenamine. This drug is really a magic bullet in Spirillum minus infections and gives promise of being useful in Haverhill fever. It is of interest to note, in this connection, that Spirochaeta laverani, used by Ehrlich while working on the arsphenamines, and Spirillum minus, are probably identical organisms.²

The purpose of this paper is: to mention controversial points concerning these two infections; to describe the important clinical features of each and to note the clinical differences; and to serve as a reminder that these diseases have occurred in Illinois and should be remembered in fevers of obscure origin. Three cases are reported.

Wounds caused by rat bites are relatively uncommon, often heal quickly and as a rule, are not followed by infections. If an illness does appear after several days have elapsed, the patient and the physician may entirely overlook the relation existing between the bite and the disease which has followed. This diagnostic oversight, coupled with the natural rarity of rat-bite infection, increases its reputation as a curiosity. However it probably occurs much more frequently than we suspect. Three out of four patients whom we have treated following rat bites have

had these infections. In 1929 five cases were diagnosed in one southern county after the attention of the local physicians was directed to the disease.

Infections following rat bites have been recognized for centuries in Asia and are now seen throughout most of the World. Wilcox reported a case in Louisiana in 1839, and since that time more than one hundred cases have been recorded in this country. As the etiological agent was unknown the term "rat-bite fever" has been used until recently for any infection following a rat bite. In 1914 Schottmuller reported a case in Germany in which a streptothrix was found in blood cultures, and in 1916 a similar case was reported in this country by Blake.³ In Japan, Futaki⁴ isolated an organism which he named *Spirochaeta morsus muris* in one of these infections in 1916.

Since then first one and then the other of these organisms have been found in these cases, and this has led to much confusion and controversy concerning the true cause of the disease. In a few cases both have been found, and occasionally other organisms, such as streptococci, have been isolated and suspected of causing the infection. One investigator suggested that all cases may be caused primarily by the *Spirochaeta morsus muris*, now called *Spirillum minus*, and that the streptothrix, now called *Haverhillia multiformis* (*Streptobacillus moniliformis*) is a secondary invader. On the other hand Dawson and Hobby⁵ think that it is inadvisable to admit that *Spirillum minus* causes the infection without careful investigation. They base this opinion on reports of Francis⁶ and others which show that many laboratory animals used in making a diagnosis are already naturally infected with *Spirillum minus* before being injected with the suspected blood, and suggest that this fact makes the spirillar theory of infection doubtful. They report two cases in which only *Streptobacillus moniliformis* was found although the clinical course was much like a spirillar infection. However a mild polyarthrits was seen in each case.

Pleuropneumonia-like organisms have been reported by Klieneberger⁷ in cultures of *Streptobacillus moniliformis* (*Haverhillia multiformis*). She considered this an example of natural symbiosis. Dawson and Hobby⁵ followed her methods carefully and found this organism, but

thinks that it is only a variant phase of *Streptobacillus moniliformis*. Pleuropneumonia-like organisms have also been found in exudates in acute rheumatic fever, but Swift⁸ thinks they probably originated in the laboratory mice used during this work.

Marked clinical variations have always been noticed in case reports of rat-bite infections and this has added to the confusion mentioned above. Some have thought that such variations are to be expected in any disease. In these infections, however, the variations were so marked that two distinct clinical pictures have gradually emerged from the confusion. Competent observers, such as Allbritten⁹ and his associates, and others, have collected enough evidence to make them feel sure that we are dealing with two distinct diseases, one caused by *Spirillum minus*, and the second by *Haverhillia multiformis* (*Streptobacillus moniliformis*). If this is correct it will go far towards explaining the different clinical and laboratory findings. It is now believed that *Haverhillia multiformis* is the same organism as the *Streptothrix* described by Schottmuller in 1914 and by Blake in 1916. Similar streptothrix infections were reported in Chicago in 1918 by Dick and Tunnicliff¹⁰ following a weasel bite, and by Tunnicliff and Mayer,¹¹ following a rat bite. In 1938 Farrell¹² and associates summarized fourteen infections in which *Haverhillia multiformis* or similar organisms have been found in the blood or joint fluids.

The first clinical entity, caused by the *Spirillum minus*, will probably continue to be called rat-bite fever or Sodoku.¹³ The second, caused by *Haverhillia multiformis* (*Streptobacillus moniliformis*) has only recently been identified and is called *Haverhillia multiformis* septicemia, or sporadic Haverhill fever. This organism has been isolated from the blood and joint exudates in several infections following rat bites,¹² and from the same sources by Parker and Hudson¹⁴ in epidemic Haverhill fever. It causes both the epidemic and sporadic forms of this disease, which are identical excepting the manner in which infection occurs. Place and Sutton¹⁵ described the epidemic which occurred in Haverhill, Massachusetts in January 1926, hence the name, and refer to another occurring in Chester, Pennsylvania in May and June, 1925, which was studied by Armstrong. Hazard¹⁶ and Goodkind

suggested in 1932 that rat bites could cause sporadic cases of Haverhill fever. Scharles and Seastone¹⁷ reported such a case in 1934. Strangeways¹⁸ reported that *Haverhillia multiformis* is often found in the nasopharynx of rats. It is possible that food may be contaminated from this source thus producing epidemics or sporadic attacks of the disease.

Spirillar infection in wild rats varies from two to twenty-one percent in various colonies (Bayne-Jones).¹³ Hans Zinsser¹⁹ found many infected rats in Boston and was surprised that more cases were not seen in human beings. Ford¹⁹ reports many infected rats in Baltimore, and the same condition is probably present throughout the country. Other animals which may transmit the disease are the field mouse, ferret, cat, squirrel and weasel. Laboratory workers are frequently infected when bitten by rats and mice. Ripley and Van Sant²⁰ reported two medical students in Chicago who were infected while operating on a dog. Individuals sleeping on or near the floor in rat-infested premises are most likely to be bitten and infected.¹⁹ Many people are forced to sleep in basements, subways, and bombproof shelters during modern wars and this should make the disease more prevalent.

In rat-bite fever caused by *Spirillum minus* (sodoku) the wound caused by the bite, usually heals by first intention. After a five to twenty-five day incubation period (generally about two weeks) the initial wound becomes red and painful, blisters may appear, and eventually ulceration occurs. The ulcer has a clean surface and a serous discharge. It often resembles an extragenital chancre and heals very slowly (Arkin). Pus in the discharge often indicates that some other organism is causing the disease or is acting as a secondary invader. These local changes are accompanied by a lymphangitis with regional lymph node involvement somewhat like that seen in tularemia. A hard chill usually occurs about the time the local changes are noticed. This is accompanied by generalized muscular aching and pain. The fever rises rapidly to 104 or 105 degrees, lasts two or three days and then quickly drops to normal or below and is followed by a drenching sweat. These chills recur at intervals of three or four days to a week and may go on for months if the disease is not recognized

and properly treated. Soon after the onset of the disease the typical eruption, one of the outstanding characteristics of the infection, appears. After each chill large reddish-purple maculopapular spots appear on the skin at various places including the face. Some are two or three inches in diameter, others only as large as a dime. As the fever subsides after each chill these spots gradually fade out, but return after the next chill. Between chills the patient may feel very well but as the disease continues, weakness and emaciation become more marked until in unfavorable cases, a state of exhaustion finally supervenes. The reported mortality varies from two to ten percent.

In sporadic Haverhill fever (*Haverhillia multiformis* septicemia) the rat bite usually heals promptly and as a rule, the wound subsequently shows little if any reaction at any time. After a three to five day incubation period the invasion begins and the clinical course is exactly like that of Epidemic Haverhill fever. The onset is sudden and generally very severe. Nausea and vomiting are early complaints. Other prominent symptoms are chills, backache, general muscular pain, and headache. The initial fever may reach 105 or 106 degrees and frequently causes delirium. This fever falls rather abruptly sometime during the following two to five days with marked improvement in the other symptoms, the patient often feeling so well that he gets out of bed, and may even return to work. A rash is seen in practically all cases, appearing on the second, third or fourth day of the disease. It is "rubellaform to morbilliform" in appearance, is seen chiefly on the extensor surfaces of the extremities, and about the joints. In severe cases the distribution is more general. It lasts from one or two to eight days and desquamation may follow. A secondary rise in temperature occurs in from one to three days after the initial fever drops and is quickly followed by a polyarthrititis which commonly appears on the fourth or fifth day of the disease. This arthrititis has appeared on the second day of the disease and also as late as the thirteenth day. It may persist for weeks or months, the fever running a curve somewhat like that seen in typhoid fever, only with greater daily variations. During this period the disease is easily confused with acute rheumatic fever. Sore throat is seen in half of the cases, appearing most often about

the eighth day. Some patients have bronchitis. The death rate is unknown but very low.

CASE REPORT 1

Clinical diagnosis: Spirillar rat-bite fever.

E. B. Age eight years. Past history unimportant. General physical condition good. Bitten by rat on dorsum of right foot on September 18, 1928. One week later a red spot appeared a few inches above the wound, which had apparently healed. On September 30 he had a hard chill. The region around the bite became inflamed, painful and later ulcerated. The inguinal lymph nodes were enlarged and tender. Later some enlargement was noted in all superficial lymph nodes. Headache and general muscular pain were severe. The fever dropped in two days and a profuse sweat occurred. The chills appeared about every fourth or fifth day after this, the fever lasted for twenty-four to forty-eight hours, dropped quickly and a drenching sweat always followed. The typical rash appeared soon after each chill and gradually faded out after the fever dropped. The larger spots were two inches in diameter. The eruption was purple or a reddish-purple and was generally distributed, including the face. During the second month the chills came every six or seven days. On the 24th of November the fever reached 105.4 and on December 1st 105.2 degrees. The pulse was very rapid. The only important physical findings were the marked exhaustion and emaciation which were becoming more pronounced after each chill. The hemoglobin was 55%, R.B.C. 3,200,000 and W.B.C. 11,500. No malarial parasites or spirilla were found in stained blood smears. Agglutination tests for typhoid and undulant fever were negative. Guinea pigs were inoculated with blood taken during a chill but no spirilla were found, possibly because of unfamiliarity with the technique.

This boy had no arthritis at any time. He had been treated for typhoid, malaria and various other diseases. .2 gm. of neoarsphenamine on December 18th and December 23rd stopped the chills at once. There was no recurrence of fever and the convalescence was rapid.

CASE REPORT 2

Clinical diagnosis: Spirillar rat-bite fever.

A second patient, seen in consultation soon after this, had been bitten by a rat on the thumb while moving a pile of lumber. The disease came on in about two weeks after the bite and ran a course much like that reported in Case No. 1. The diagnosis was made early in this case and the disease was stopped immediately after using neoarsphenamine. No arthritis appeared in this case. The Wasserman report was positive, but syphilis could not be ruled out.

CASE REPORT 3

Clinical diagnosis: Sporadic Haverhill fever following a rat bite.

Mrs. L. T. age 52 years. Past history unimportant.

Physical condition good. Was bitten on right thumb by a rat at 1. A.M. May 3, 1940. On May 7th complained of being tired, refused evening meal and at 7 P.M. had a hard chill followed by fever. Nausea was severe but she could not vomit. One of us (C.G.S.) examined her at 9 P.M. Complaints, chilly, aching and feverish. The temperature was 101.6 Her neck was stiff. Tenderness noted in lower left abdominal quadrant. The rat bite had healed and was covered by a dry scab. No local reaction or adenitis occurred. A rash resembling measles appeared on May 8. Distribution — chiefly on the extremities. The fever then dropped and the general condition was much improved. Moderate general abdominal tenderness was present, but disappeared on May 10th following a laxative. The rash faded out on May 11.

The fever returned on May 10, the patient complaining about moderately severe pain in her back and right elbow. On May 11, her right ankle was so painful and sensitive that she could not walk. The temperature ranged from 101 to 103 degrees. The polyarthritis then attacked various joints including the left knee, left ankle, and wrist, the right elbow, right tarsal and metatarsal, and right temporomandibular joints. The right wrist was swollen, very red and sensitive. Soft crepitus appeared in the left shoulder. Various other joints were involved, some improving, some getting worse. The right ankle was red and distended with fluid during the latter part of May. A pharyngitis appeared on May 20. A week later this was getting "worse and worse," the left anterior pillar and posterior wall of the pharynx were red, and a chain of enlarged glands appeared in the right cervical region. Some hoarseness was present. The throat was better by June 7th and the joints showed some improvement. She complained of soreness all over the body. Temperature ranged from normal to 102 degrees. A drenching sweat occurred on June 8th. On the 11th she had severe pain in both arms. She was very weak. The appetite was improving but the arthritis was still active.

Neoarsphenamine was started on June 16, beginning with .15 gm. and seemed to help immediately. Doses of .3 gm. were given at four to seven day intervals until July 17th with steady improvement after the first dose. A total of 2.1 grams was used. The patient could walk around in the house by July 6th and after that her progress was satisfactory.

Laboratory findings were unimportant. The hemoglobin averaged from 70 to 80%. W.B.C. count about 7,000. The urine showed a trace of albumin and a few pus cells on one occasion. A diagnosis of acute rheumatic fever was considered at first, but later the entire picture was so typical of sporadic Haverhill fever that, unfortunately, blood cultures were not made. There was no indication of heart damage at any time.

The paper of Allbritten⁹ and his associates gives an excellent outline of laboratory procedures required in the differential diagnosis of rat-bite and Haverhill fevers.

SUMMARY

1. Present information concerning rat-bite and Haverhill fever is incomplete, and some points are controversial.

2. These infections will be overlooked, thus preventing needed research, if we are not familiar with the main clinical features of each.

3. Rat-bite fever caused by *Spirillum minus* always follows an animal bite. The incubation period is about two weeks, is followed by a chancre-like ulcer around the initial wound, and regional lymphangitis and adenitis occur. The characteristic course consists of a series of chills at four to seven day intervals. A reddish-purple eruption accompanies each chill. The spots may be two or three inches in diameter. The disease is promptly stopped by neoarsphenamine. Arthritis is not seen.

4. Haverhill fever may or may not follow an animal bite and epidemics may occur. The incubation period is short (usually three or four days). If caused by a bite there is subsequently little or no reaction around the wound. The measles-like rash comes a day or so after the initial fever and may become petechial. After fading it seldom returns. A secondary fever and polyarthritis appear soon after the initial fever subsides and may last for weeks. The secondary fever is irregular but persistent. It may resemble the spirillar type. The response to neoarsphenamine is uncertain but the drug should be tried.

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A CLINICAL APPROACH TO THE ROENTGEN DIAGNOSIS OF CAR- CINOMA OF THE COLON

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Stimulated by the pioneer work of George E. Pfahler and Fedor Haenisch, the writer began the roentgenological study of the colon more than thirty years ago. The roentgenological technic of that day, modified and elaborated, particularly by the contributions of Forssell, Fischer, Akerlund, Berg, Chaoul, Schwarz, Gilbert, Weber, Gershon-Cohen, and others, has been described in a previous paper* and the reader is referred to it for details of technic to which allusion may be made in subsequent pages of this presentation. The present communication deals with the roentgen evidences of carcinoma of the colon, not including the rectum.

Of all carcinomas found in the body about 15 per cent are located in the large intestine. About two-thirds of these occur after the age of fifty years, but one is struck with the number of cases in individuals of thirty or younger. These younger cases are characterized by shorter dura-

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*CASE, James T. Comparison of methods of roentgen examination of the colon. J.A.M.A. 108: 2028-2034 (June 12), 1937.

tion of symptoms, a higher index of malignancy, greater frequency of metastases and inoperable tumors, and a diminished proportion of good results as judged by five-year survivals.

Although the actual cause of carcinoma of the large bowel remains obscure, as is true of carcinoma in general, there has been important progress in the recognition of predisposing and contributing factors. The significance of untreated benign lesions as an occasional predisposing cause has been emphasized by Curtis Rosser, among others. Ewing is skeptical as to the etiological importance of fissures, fistulas, hemorrhoids, and ulcerative lesions. It has been claimed that constipation plays no important part in the evolution of carcinoma of the bowel. Emphasis has been placed on the fact that constipation is more common in women, yet they suffer less than men from carcinoma of the colon. The anal canal is very rarely the site of carcinoma, although it is the part most likely to become irritated by the passage of hardened retained fecal materials. However, it must not be overlooked that the cecum and the rectosigmoid are the most common sites of colonic stasis and they are also hosts of the great majority of carcinomas of the large intestine. Cancers of the colon originate in the crypt cells. While all carcinomas of the colon may not originate in polyps, evidence is accumulating that most of them have their origin in just that way. The menace of colonic cancer may best be reduced by early recognition of the presence of polyps before they have had time to undergo malignant degeneration or while this degenerative change is still in such an early stage of development that their prompt resection may offer reasonable expectation of cure. Their menace as potential carcinomas is enhanced by a history of familial predisposition to polyposis.

Benign tumors of the colon, other than benign polyps, are exceedingly rare and as a rule are not recognized since they are generally small and do not cause cachexia and other symptoms of a general character. They may cause intussusception. For the most part they consist of fibromas and hemangiomas; lipomas and neurofibromas are very infrequent. Intussusception may cause alarming symptoms and endanger life. Differentiation between large benign and malignant tumors is often difficult. All colonic tumors should be considered and treated as malignant,

since their malignant nature cannot be disproved.

Most cancers of the large bowel belong to the classification of adenocarcinoma, the squamous cell tumors being found almost exclusively in the lower rectum and anus. According to Rankin, the adenocarcinomas may be classified as medullary adenocarcinoma, scirrhus or fibrocarcinoma, mucinous (colloid) carcinoma, papillomatous carcinoma, squamous carcinoma, and melanoma. All originate in the crypt cells or glands of Lieberkühn.

In the proximal colon (cecum, ascending and right half of the transverse) obstructing tumors are not common, since the lumen of the bowel here is two or three times that of the distal colon. The tumors are usually of the medullary type, involving the posterior wall more often than the anterior, large, fungating, friable, tending to ulceration, with a disposition to invade the bowel wall rather than to encircle its lumen. Including cancers of the rectum, Karsner and Clark's analysis of a series of 104 malignant tumors of the colon showed annular lesions in 57 per cent of rectal cancers, 82 per cent of sigmoid cancers, and 61 per cent of upper colon cancers, while of seven carcinomas of the cecum none were annular. Local extension of the lesion is infrequent. Metastases from cecal cancers were found in 32 per cent of Craig and MacCarty's series of one hundred cases.

In the distal colon carcinomas have somewhat different characteristics, being usually scirrhotic, tending to constriction, many of them of the napkin-ring type, ultimately encircling the bowel and producing obstruction. Sometimes the obstruction is acute. The truly band-like napkin-ring types are occasionally associated with enormous dilatation of the chronically obstructed bowel proximal to the narrow band of constriction, constituting a veritable megacolon. The distal colon is also more likely to harbor the papillomatous tumors, usually of a relatively low grade of malignancy, though they may attain to large proportions. Bleeding is more common with left colon lesions. Later stages of all these lesions are accompanied by ulceration, invasion of surrounding tissues, and secondary infection. Carcinoma of the transverse colon sometimes shows invasion of the stomach. In some of our cases a spontaneous gastrocolic fistula resulted

from such an invasion. We have twice encountered two independent carcinomas in the same colon.

Polypoid growths are potentially malignant. Fitzgibbon and Rankin classify colonic polyps in three major divisions:

Group I. This group includes those polyps in which the epithelium retains its normal characteristics. They are usually roughly nodular, surrounded by evidences of slight hyperplasia. Their size varies from 3 millimeters to masses measuring 10 to 20 millimeters in diameter. Invariably pedunculated, they show no tendency to branching or papillary forms. In the bowel they act like foreign bodies; they ulcerate and they may be torn off by the forces of peristaltic action. Usually they run a benign course over a long period and are no more likely to become malignant than normal intestinal mucous membrane.

Group II. This group shows abrupt and striking structural changes in epithelial and connective tissue elements, with evident failure of proliferating cells to differentiate completely. They are also invariably pedunculated and attain a size of 5 or 6 centimeters with pedicles of equal length. Sessile tumors are also found — flattened, hemispherical excrescences with overhanging edges concealing the stalk of the pedicle. All the large-size tumors fall into this group which therefore includes most of the polyps of the large bowel. However, they are not consistently benign. Some on section may show a microscopic area of definite carcinoma. The development of malignant changes is apparently dependent upon the rate at which the tumor grows; with rapid growth it is only a question of time until carcinoma appears.

Group III. Failure of differentiation of the epithelium characterizes this group as in Group II, but this classification is limited to those tumors where the epithelial differentiation has been arrested so early that only the most rudimentary characteristics of normal mucosa have been attained. Group III are modified forms of Group II. Polyps of this group reach the size of 6 to 9 millimeters, the size of a split pea, scarcely ever larger, and have begun their malignant change before the forces of peristaltic activity have had time to influence them. There is early involvement of the submucous layers.

Rankin believes that many, if not most, of the carcinomas of the colon develop through proliferations of Group III.

Generally, polyps must be considered as potentially malignant or precancerous. Karsner and Clark believe that 40 per cent of adult cases of polyposis become malignant. Polypi constitute the most frequent precancerous lesions.

The clinical symptoms of carcinoma of the colon are extraordinarily varied. Really there are no symptoms which might be designated as in themselves distinctive of colonic cancer. Emaciation does not occur until late; on the contrary, there is an obesity in many instances. Many complain of symptoms which they refer to the stomach, such as a feeling of fullness and a lack of appetite. In such patients, if the roentgen study of the stomach proves negative, the examination should be continued to include the colon, both by a study of the opaque residues of the meal and by an opaque enema study, with such elaborations of technic as may seem indicated in the particular case. And even when the symptoms indicate the presence of a cancer somewhere in the colon, careful proctoscopic and sigmoidoscopic and roentgenological studies are required to determine the nature and exact site of the lesion. The average patient, when first diagnosed as having definitely a colonic neoplasm, gives a history which in retrospect can be dated back nearly a year. Furthermore, the colon is the seat of various other affections whose symptoms resemble those of colonic carcinoma. In positive cases the site and gross characteristics of the tumor will cause wide variation in the clinical manifestations, depending on the presence or lack of secondary mechanical symptoms, ulceration, perforation, metastases, secondary infection, etc.

In general, the symptoms can be discussed under two heads, according to the situation of the lesion, whether in the right (proximal) or distal colon. In the right half of the colon, especially in the cecum, the liquid content of the bowel, the predominance of non-obstructing, large, ulcerating growths and the large diameter of the intestine combine to give prominence to dyspeptic symptoms of persisting epigastric distress and local right-sided tenderness, anemia often unassociated with loss of blood, and weakness, and frequently a palpable mass with conspicuous ab-

sence of alternating constipation and diarrhea. A palpable tumor has been found in about half of the cases. The size of the growth usually is in direct ratio to the degree of anemia. In Rosser's series, gross bleeding occurred in 14 per cent of cecal tumors as compared with 78 per cent for lesions of the distal colon. In the hepatic flexure carcinoma of the colon gives rise to symptoms which are similar, sometimes with the addition of signs of obstruction.

In lesions of the distal colon, the predominant symptoms are of obstructive character, because of the greater tendency to encircling growths and a considerably less liquid content of the bowel. The obstruction is usually progressively chronic, with only an occasional case of acute obstruction. Acute stoppage may be superimposed on a chronic stenosis and appear to have developed rather suddenly. This is understood when one considers that the actual lumen of the bowel under progressive constriction is reduced in greater proportion than the reduction of the diameter might suggest. Along with the chronic progressive obstruction there occurs an increasing dehydration, intestinal intoxication, and general lowering of the patient's resisting powers. The augmenting constipation results in gas distension, transverse colicky pains in the epigastrium, gurgling sounds of gas passing from one segment of the bowel into another through spastic contraction rings of peristalsis and anti-peristalsis, and finally loose movements, alone or alternating with constipation. Pain is not an outstanding symptom, although the radiating transverse discomfort due to the peristaltic unrest may be mentioned. Bleeding is a cardinal sign of distal colon lesions.

A consideration of these symptoms has been given in some detail in this paper for the reason that the roentgen study, always indispensable in the search for colonic pathology, cannot be carried out to best advantage unless the radiologist is acquainted with these signs and symptoms, so that he may concentrate his efforts and modify his technic according to the probable site of the disease. The radiologist cannot diagnose the cases any earlier than they are referred to him. Patients should be awakened to earlier complaint about dyspeptic symptoms or at least to routine submission to periodical health examinations which should be done very carefully

with careful check on the symptoms above noted so that the attending physician may recognize warning signals.

The roentgenological detection of colonic neoplasms depends upon some alteration of the bowel wall, affecting its lumen or its elasticity, which can be recognized as more or less of a filling defect, perhaps involving only the mucosal pattern, but more likely, when discovered, to have already invaded the submucous and muscular layers. The first roentgenological sign may be a localized rigidity of a segment of the intestinal wall. According to the location of the tumor in relation to the proximal or distal colon, there may be a certain amount of obstruction, though not in the early lesions. If the obstruction is of high degree, the filling defect caused by the neoplastic tissue protruding into the lumen will be augmented by accumulated non-opaque fecal material proximal to the stenosis. There may be a palpable tumor; if so, under fluoroscopically controlled manual examination it will be seen to coincide with the filling defect. These are the roentgenological signs of a gross degree of tumefaction which could hardly escape detection on the routine study of the colon fully distended by the ordinary opaque enema.

The recognition of earlier phases of the disease will, however, require a much more painstaking and time-consuming effort. In all these cases there is a period of expected lag from the beginning of the earliest malignant cellular change until such time as the growth of the malignant cells has caused enough organic alteration to permit roentgenological detection.

One wonders if we ever find a really early colonic carcinoma except by chance. By the time the diagnosis is made in the average case, we find on carefully interrogating the patient that he admits symptoms which date back nearly a year. The lesion is scarcely to be termed early. Schwarz reported a case in which he found suspicious areas to which he called attention but which in the light of some previous experiences he hesitated to pronounce malignant; after an interval of five months the patient came in for re-examination, the lesion was confirmed and operated with the discovery of an inoperable carcinoma. So he urges that not over six weeks be allowed to intervene between the

finding of an area which arouses suspicion and the confirmatory examination. And yet, there are scores of our cases which were manifestly not early who have survived resection for fifteen or twenty years or more. Failure to perceive a colonic carcinoma when it is very early and small does not mean that operation does not promise a high probability of permanent cure. For that matter, there is no regular relationship between the size of the tumor and the outlook for cure after surgical removal, in the sense that large growths offer a poorer prognosis than small ones. Indeed, the highly malignant growths manifest early extension and metastases while the tumor is still small, not yet having had time to grow to larger proportions, whereas the tumor of a lower grade of malignancy may achieve large dimensions before metastases begin.

Two principal factors are indispensable for the early detection of colonic neoplasms by roentgen study: (1) The adoption of a carefully chosen and meticulously followed technic, and (2) the personal equation of the examining radiologist, his experience, versatility, persistence, technical dexterity, and resourcefulness in utilizing the various possible modifications of technic in his examination. Many have the idea that the roentgen study of the colon is more or less standardized, as are so many of the procedures of the ordinary clinical laboratory. The x-ray office or department is not a laboratory in that sense at all, but a consultant's office, provided with the necessary equipment for a wide variation of technic in examination with the x-rays. It follows, then, that the radiologist, like any other medical consultant, should have at his disposal all the knowledge previously gained about the case in hand.

For instance, if it seems that the lesion is situated in the sigmoid, by reason of physical findings, presence of bright blood, obstructive signs, history of inability to take anything more than small enemas, etc., he will be careful not to fill the entire colon at first, but, in order to avoid overlapping of shadows from the proximal colon he will fill only the sigmoid and the first part of the descending colon with the opaque material, study it carefully, make aimed radiographic exposures on the fluoroscopic table with compression or turning of the patient, and then allow the opaque material to be discharged. Per-

haps he will fill it again and make further studies or inject with air, all the while turning and manipulating the patient to bring out every inch of the suspected bowel into relief. Directly lateral exposures of the rectosigmoid are sometimes very informing. Or, if the cecum and ascending colon are under suspicion because of a palpable tumor, signs of old blood or mucopurulent material, anemia, emaciation or localized distress in the proximal colon, the radiologist will be extremely careful not to fill the cecum so much as to allow visualization of the terminal ileum whose loops may overlap and confuse the cecal shadows.

Preliminary digital examination of the rectum, and preferably also a proctoscopic or, better yet, a sigmoidoscopic study, should precede the administration of the opaque enema as an invariable routine. The findings of this rectal study should also be communicated to the radiologist, so that he may plan accordingly.

In the average colon examination with the opaque enema in cases whose symptoms do not specially indicate a colonic lesion, it may be justifiable to conduct the examination in routine fashion without special preparation of the patient; but if the preliminary study with the endoscope has shown rectal or rectosigmoidal ulceration or polypi or a pinkish discoloration of the bowel contents, he will wish to prepare the patient's colon by cleansing enemas the night before and perhaps also on the morning of the colonic study, providing not less than two or three hours elapse between the administration of the cleansing enemas and the x-ray study. It is highly desirable to have a "dry" bowel for x-ray study. The desirable preparation would be that which one would give the colon in preparation for a colonic resection. If endoscopic study is not done before the x-ray examination, it may have to be postponed for several days until the barium residues have been discharged.

The cecum, ascending colon, most of the transverse and descending colon and the middle of the sigmoid offer splendid opportunity for palpation under screen control with the hand carefully protected with a lead-rubber glove or with a wooden, specially shaped palpator which will permit the hand to remain safely protected by the leaded glass of the screen. If the cecum lies too low, it can be raised up by a combination of

tilting the table, having the patient exhale forcibly and by external manipulation, sometimes aided by injection of the sigmoid with air or liquid to cause it to lift up the cecum within reach of the palpating hand. The sigmoid can best be studied in obliquity, right or left as suits the case, and by straight lateral aimed film studies with the patient turned squarely upon the side, preferably before the rest of the colon is filled, a practice which we have observed for more than thirty years.

In selecting the method of examination in a given case, attention must be given to the probable value of the oral as contrasted with the clysma method. The opaque materials administered by mouth become more or less dried out before they reach the distal portion of the colon, and it is in relatively few instances that one obtains as much information concerning a colonic lesion by the oral as by the injection method. Generally the opaque enema, alone or in combination with the various stages of the air-injection method, will be chosen. It gives immediate information without the delays necessary for the opaque meal residues to reach the colon, and it is a means which is more elastic and variable than the opaque meal. It has been argued that one should never give the opaque meal in the presence of probable colonic obstruction; but that is not necessarily so, for umbrathor (aqueous solution of thorium dioxide) is available for oral use, and it never goes out of solution; the shadow cast is indistinguishable from that afforded by barium preparations. Indeed, umbrathor is rather useful for bringing out the mucosal relief patterns in the enema studies, though somewhat expensive for that purpose and no better than simple suspensions of barium sulphate made up with mucilage of acacia, or glycerine, or other similar materials.

The roentgen findings in colonic carcinoma will vary according to the situation of the tumor in the right or left half of the organ. In the right or proximal colon, filling defects constitute the most common finding, whereas the left or distal colon exhibits the larger number of obstructive lesions. The smaller the lesion the more the difficulty in demonstrating a filling defect; and in the left colon obstruction may not as yet have supervened. The technic of controlled palpation under the fluoroscopic screen

with the hand encased in a lead-rubber glove or with the wooden palpator may be varied to suit any segment of the colon except the right and left flexures which are protected from palpation by the costal margin. It is not always possible to palpate the sigmoid; the rectosigmoid and the rectum usually entirely evade palpation. It is well to study the visualized colon foot by foot, indeed inch by inch, as the opaque enema ascends, and to avoid overfilling lest the terminal ileum may also fill and its coils interfere with the post-evacuation study of the cecal and sigmoidal areas. It may be that the routine opaque enema is sufficient and that the lesion can be located and estimated as to size, mobility, coincidence with a pain point and degree of obstruction if any. The patient is then allowed to expel the enema, or better yet the enema is allowed to escape into a waste-pail, and numerous aimed fluorographic small films as well as ordinary large radiographic films are made as record. These often prove highly interesting, and from them one may draw conclusions of value as to the presence or absence of an organic lesion. These studies made after the colon has contracted its lumen are often more informing than the films made while the colon is distended with the opaque enema, the mucosal relief being brought out in considerable detail. Often it is desirable to inject with air after a satisfactory emptying study has been made. If it is decided to inject air by rectum, the greatest care should be exercised to accomplish air distension under screen observation so as to avoid over-dilating the intestine, not because of any great danger of rupture but because the over-dilated bowel does not afford as much information as one less distended, and it is not desirable to force air through the ileocecal valve into the terminal ileum where it not only causes interference with interpretation of the colonic shadows but it also causes the patient to experience a sickening feeling, sometimes colic and often vomiting. Stereoscopic film records are preferable after this air distension, since the stereograms permit more reliable interpretation than the single films. The air-distended loops of bowel cast very confusing shadows.

The more complicated combined technic, which is beyond question time-consuming and

often very inconvenient, is particularly indicated when there is a question of polyps or ulcerations. It is not a necessary procedure for the detection of diverticula and only occasionally does it bring out additional information concerning carcinoma. But since such a high percentage of malignant lesions of the colon grow out of polypoid degenerating tumors, it is recommended that the combined method be employed whenever the clinician really feels that carcinoma of the large bowel must be excluded.

One of the most valuable signs of polypoid intestinal growths is intermittent intussusception. Colo-colonic invagination nearly always has carcinoma as a cause, though it may rarely be a pedunculated lipoma. The tumor is seized by the movements of peristalsis and protruded into the aboral segment of the colon where it causes obstruction. The funnel-shaped intussusceptum is pushed into the invaginating segment, so that the lower bowel segment, as visualized by the opaque enema, ends in a goblet-shaped concave shadow partially surrounding the non-opaque end of the upper segment. We have succeeded several times in bringing about a successful diagnosis of colonic neoplasm in an early stage by assuming that each of these colo-colonic invaginations is accompanied by a polypoid tumor, invisible on the films.

It is fair to postulate that when the roentgen study reveals evidence of a tumor in the colon, this tumor should be considered malignant unless proved otherwise. Three quarters of the cases which come to surgery for the colon have a diagnosis of carcinoma. A well-trained and experienced roentgenologist should succeed in identifying the malignancy of a colonic tumor in upwards of 90 per cent of cases. Indeed, Rankin relates that Weber made a correct diagnosis of 99 out of 102 organic lesions of the large bowel proximal to the middle of the sigmoid flexure, as proved by operation. To equal this record, one must bear in mind the possibility of hyperplastic tuberculosis, segmented chronic ulcerative colitis, sarcoma, benign tumor, diverticulitis, actinomycosis, and possibly other lesions. But with the exception of diverticulitis these are rare as compared with carcinoma. In a series of 542 cases of surgical diseases of the large intestine and rectum (Mayo Clinic), carcinoma was found 369 times, whereas tuberculosis occurred only 9

times, ulcerative colitis 7 times, polyposis only 3 times, sarcoma only once, and diverticulitis requiring surgery 12 times. Some of these lesions occurred more frequently in the examining room, of course, not being amenable to or requiring surgery. Diverticulosis and diverticulitis are much more frequently found, being seen in some degree in 15 or 20 per cent of all cases subjected to colon examination at our hands. The filling defect resulting from carcinoma is flat, annular, polypoid or obstructing, sometimes attended and modified by spasm, but usually characterized by irregular serration of the lumen at the site of the lesion, constancy of the finding and coincident palpation of an induration at the site of the defect; whereas with diverticulitis the filling defect is fusiform, always annular, much less irregular in its serration, usually massive without crater formation, with some preservation of mucosal pattern, and with patient observation, sometimes extended over twenty-four hours, it will be possible to discern a few or many of the characteristic small, bud-like, rounded shadows representing opaque material in the lumen of the diverticula.

The identification of polyps in colonic roentgenograms is not always a simple matter. The numerous small rounded defects in the colonic shadow, often seen after expulsion of the opaque enema and the introduction of air, are said to be pathognomonic of generalized polyposis, but it is possible to observe this same appearance due to the presence of numerous small air-bubbles. Rounded masses of inspissated non-opaque fecal matter retained in the colon in spite of efforts at cleansing may closely simulate polyps. Because of this possibility it should be a rule to insist upon a duplication of the examination whenever the findings of the first study indicate a probability of multiple polypoid growths. In fact, it is a good practice to duplicate the findings at a second study in every case in which serious surgical procedures depend upon the decision of the radiologist. I have in mind the case of a gentleman with certain symptoms suggesting the presence of a colonic carcinoma. The ordinary enema study with opaque media showed an apparent ring carcinoma at the middle of the sigmoid loop; at operation no abnormality was found in the colon, even after a colotomy was performed. In retrospect, it was felt that in case of a napkin-ring carcinoma there should

have been a marked dilation of the colon proximal to the apparent constriction, and in any event, the findings should have been duplicated at a second x-ray study.

In the endeavor to advance the stage at which a positive diagnosis can be made radiologically in the early lesions, the radiologist is tempted to view with suspicion every possible variation of the colonic contour from that ordinarily observed. This is as it should be, but it introduces into the problem numerous sources of error which may lead to a mistaken positive opinion when no organic lesion really exists. Like a sentry on outpost duty at night, he must be on guard against seeing things which do not exist. The vicinity of the rectosigmoid and the terminal few inches of the sigmoid are especially difficult to visualize and interpret, and much responsibility falls upon the radiologist when he is called upon to find or exclude an organic lesion, especially an early malignant lesion, in this area. It should never be lost sight of that all lesions in this segment of the colon must be considered malignant until they are demonstrated to be innocent.

It is not always possible on the first examination satisfactorily to visualize this part of the colon by any technic thus far devised; repeated examinations are often a requisite. We have had cases where three or four attempts were necessary before the right conditions prevailed to make a negative or positive opinion justifiable. The amount of residual opaque enema left behind after attempt at evacuation may be so dense as to hide the early lesion; filled loops of small intestine may overlie the rectosigmoid region; too much air may have been injected; the quality of the films may be unfavorable; the exact proper angle of obliquity to demonstrate the lesion may not be possible in a given instance. In many cases the positive diagnosis of an early lesion in this vicinity is in our opinion not justifiable without duplication of the findings. If the lesion is so early as to give roentgenological data of dubious character, the delay of a fortnight or a month is not likely to be disadvantageous, and another examination at this interval ought to clear up the question. We have been led to do so because we have seen cases where a second examination seemed to verify a diagnosis of polyp; yet at surgery most careful

search, sometimes aided by search with a proctoscope introduced through a colotomy, failed to show the polypi. The most intense application to superior technical detail and correlation of radiographic effort with the proper manipulation of the patient will bear fruit in better diagnostic results.

SUMMARY

In spite of the handicaps the roentgenological study when properly carried out should permit a correct diagnosis of more than 90 per cent of demonstrated cases of carcinoma of the colon. Improvement on this percentage may be gained but it must be at the expense of greatly magnifying the intricacies and inconveniences of the technical procedures. The radiologist should welcome the opportunity to improve this percentage. The study with the x-rays is not a simple procedure and it is not routine. There must be specialization of effort, and preliminary knowledge of the probability of the disease and perhaps of its location. Each case must be individualized. Although screen study cannot be omitted, particularly as a means of "aiming" the roentgenographic exposures, the preponderance or evidence will be presented by the roentgenograms which should be obtained in profusion with the greatest of painstaking and persistence in attention to technical details. Such devotion of time and material is warranted only when the radiologist is fully acquainted with the other clinical evidences on which the suspicion of carcinoma is based, so that he may function truly as a consultant in diagnosis.

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"As far as I am concerned I intend to devote the rest of my life to the problem of developing man in his organic and spiritual entirety. For the quality of life is more important than life itself. We must now use theoretical and applied science not for the satisfaction of curiosity but for the betterment of the self and for the construction of the truly civilized man."—Dr. Alexis Carrell.

The final eradication of tuberculosis is dependent on the eradication of the foci from which it is spread, and the family of the patient with tuberculosis must be carefully studied. J. G. Bohrfoush, M. D. and Pauline Michael, Amer. Rev. of Tuber., Oct. 1940.

ROENTGENOGRAPHIC CONSIDERATIONS OF SOME ASPECTS OF CHRONIC MASTOIDITIS WITH SPEC- IAL REFERENCE TO CHOLESTEATOMA

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Roentgenographic examination of the mastoid processes has become a routine, if not an indispensable, procedure in the management of all types of disease of the ear wherein extension and involvement of the mastoid process is possible.

Disease of the mastoid process may be divided into two major groups, namely, acute and chronic. Each group offers a separate clinical and roentgenological problem. Certain changes in chronic infection of the mastoid process may be detected with accuracy only by roentgenographic examination and I wish to discuss some of these changes in the following.

During the years 1934 to 1941 at the Illinois Eye and Ear Infirmary there has been a gradual decrease in the number of acute mastoid cases examined roentgenographically with a comparative increase in chronic ones.

	1936	1937	1938	1939	1940	Totals
Cases examined	259	250	355	561	573	1958
Normal		41	9	57	13	120—6%
Acute	96 38%	95 38%	78 22%	107 19%	106 18%	482—24%
Chronic	163 62%	114 46%	228 75%	397 69%	454 80%	1356—69%

Whether this change is due to the efficacy of Chemotherapy or not (many believe this to be true)¹ I am not prepared to state, but such an alteration makes roentgenographic diagnosis of chronic mastoiditis increasingly important.

One may ask, "What is chronic mastoiditis?" On reviewing the literature on mastoiditis a hard and fast dividing line cannot be drawn between acute and chronic conditions but from a roentgenological standpoint I believe the following criteria will designate a chronic condition:

"Intermittent or persistent symptoms and or clinical findings referable to the mastoid process following an acute otitis media infection

when supported by demonstrable abnormal change on x-ray study. The time after the original acute infection may vary from a few weeks to years."

When an infection involving the mastoid process becomes chronic, demonstrable evidence of this infection, its advance and effect, depend entirely on the process of destruction and repair therefore the major roentgenographic criteria are:

- 1.—Alteration of growth (in the young).²
- 2.—Thickening of the lining membrane of cells remaining intact.³
- 3.—Evidence of repair by calcification.
- 4.—Focal loss of bone substance.

In the following I wish to present some phases of roentgenographic evidence in chronic mastoiditis.

Sclerosis and the undeveloped mastoid: Sclerosis is defined as induration or hardening of chronic inflammatory origin.

Some writers, notably Wittmack and Schilling,⁶ have taken exception to applying the term sclerosis to changes in the mastoid process, maintaining that in most instances described as sclerosis the condition actually present is one of partial or complete failure of pneumatization of the mastoid process. It is stated however that inflammation of the mastoid, early in life, may prevent the usual process of pneumatization.

What are the usual sequence of events and changes in the mastoid process accompanying infection of this structure? In an otitis media with obstruction of the Eustachian tube the air contained in mastoid cells is slowly absorbed without exchange or replacement.⁴ If the middle ear infection extends into the mastoid antrum thence involving the mastoid process the infection involves primarily the membrane lining of the mastoid cells. The infected or inflamed membrane responds by swelling or edema and subsequently, if the pathologic process is severe enough, by exudate. The exudate may drain through the mastoid antrum if the paths of drainage are adequate, but if not, the pressure of the exudate within the cells increases to the point where decalcification of the cell walls takes place (pressure necrosis and osteitis) and subsequently the cell walls break down in varying degrees and extent.⁵ The extremes of this process are the acute destructive mastoiditides in

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which surgical intervention is indicated. However, should the inflammatory process subside, before bone destruction sufficient to necessitate surgical intervention occurs, repair of the damage due to the inflammation or infection will occur to the extent of that damage. This change varies from simple fibrotic thickening of the membrane lining the mastoid cells to recalcification of partially destroyed bony trabeculae forming cell walls. Repeated infections of the mastoid cells in the presence of repeated or continuous otitis media of lower grades may conceivably produce simultaneous changes of both active inflammation and repair.

Demonstration of these changes on roentgenographic examination is entirely possible and the appearance of the reparative change depends to a great extent on the size of the individual cell which was involved and the degree of development and extent of the mastoid process in general.

Given a roentgenographic examination of mastoids where there is a dissimilarity and asymmetry in the two sides the question which always arises is, "Is the difference in structural appearance due to post inflammatory change or is it due to developmental variation, or is it a combination of the two?"

During observation of something over 2000 cases I have found the following roentgenographic signs or evidence of most value in differentiating these changes.

Post inflammatory changes:

- 1.—General hard density throughout area of mastoid process involved with no architectural arrangement.
- 2.—The density is greater than surrounding and usually normal diploic bone structure.
- 3.—The anterior wall of the sigmoid sinus is usually roughened.
- 4.—There is frequently a history of past middle ear infections.

Developmental variation:

- 1.—There is always identifiable trabecular structure, even in the compact or diploic structure closely resembling usual skull bone architecture.
- 2.—The density may be variable but is identifiable with ossification and cellular variation.

3.—The anterior wall of the sigmoid sinus is usually smooth, well demarcated and forelying.

4.—The antra on base film appear unusually large for the general size of the mastoid (Chamberlain-Towne position).

5.—There is no history of past middle ear infections.

Inflammatory change in a poorly or undeveloped mastoid:

- 1.—History of recent otitis media is very important.
- 2.—Small punctate areas of very hard density surrounded by areas of relative lucency are usually observed in the antral region of the lateral film (osteomyelitis).
- 3.—The bone structure about the antrum on the base film is of softer appearance than that at more peripheral points.

The undeveloped mastoid may be given more than passing consideration because of the danger of early intra-cranial complications due to little or no lining membrane of cells to combat infection and the tendency of an osteomyelitis to be progressive. This fact has been given attention by Schillinger⁶ and others^{7, 8} who describe the changes as those of osteomyelitis in diploic bone or the undeveloped mastoid and osteitis in cellular structure, (such as present in the early bone involvement in infection of the paranasal sinus).

When a recent or acute infection of a mastoid has occurred in an individual who has suffered a non surgical mastoiditis in the past, roentgenographic evidence of repair of old damage is always present with density variations indicating recent involvement.

Criteria:

- 1.—Repair of old inflammatory change.
 - a.—Thickening of cell walls — hard and smooth
 - b.—Recalcification of bone loss
 - 1.—Very dense and irregular
 - 2.—No architectural arrangement
 - c.—History of recent otitis media with recent pain
- 2.—Recent inflammatory change.
 - a.—History of recent otitis media with recent pain
 - b.—Soft appearing cell trabeculae (mucosal edema)

c.—Decalcifying bone structure

d.—Foci of soft appearing, less calcium containing bone substance in comparison to surrounding.

Chronic abscess formation: In 1934 Tremble¹³ offered a classification of cell groups in the mastoid process, nine in number, covering practically all of the minor anatomic points.

In the practical application of describing these minor cell groups, the writers have encountered some difficulty in over-lapping of areas. To obviate this difficulty an investigation was made to attempt to simplify the regional cell groups, and four major groups were finally decided upon as the most practical in describing localized areas of pathologic change. They are:

- 1.—Posterior zygomatic group
- 2.—Squamous group (temporal)
- 3.—Sinus knee group
- 4.—Sino-tip group

All of these groups of cells are considered as subsequently entering the region of the periantral triangle and connecting with the mastoid antrum.

Many cases of localized bone destruction in the above mentioned groups of cells, where surrounding groups of cells show considerably less evidence of pathologic change, may raise the question, "Do these groups of cells aerate separately by continuous outgrowth from the mastoid antrum due to each having an individual path of pneumatization?"

Every roentgenologist examining any number of mastoid processes is impressed from time to time with the fact that large foci of bone destruction may occur in a mastoid process while the surrounding cells are comparatively normal in appearance or at least intact.

In any given chronic mastoid infection the possibility of a localized area of bone destruction consistent with an abscess formation may occur, and it is usually the roentgenogram which first has an opportunity to bring attention to such a formation.

There is one finding in chronic abscess formation which has been common to all observed at the Illinois Eye and Ear Infirmary during the past five years, namely:

An area of decreased density within the usual

mastoid region, not directly extending into the antrum, and completely surrounded by an identifiable margin of intact bone substance. (The identification of the mastoid antrum extension must be made in differentiation of cholesteatoma to be discussed later).

In such abscess formation, infection by the mucosus capsulatus organism may be suspected by:

- 1.—Prolonged insidious history and obscure findings.
- 2.—An area of abscess formation having surrounding bone margins which are not as dense and well defined as in other pyogenic abscesses.
- 3.—A tendency for "tunnelling" or tracts of destruction leading from the larger area into the surrounding mastoid structure and toward the mastoid antrum.⁹

A large single abscess is frequently more difficult to diagnose than several smaller areas of necrosis because of the general contours of anatomic structures bounding the mastoid process.

The following shadows have been found confusing:

- 1.—Portions of an over-lying pinna.
- 2.—Irregular bone development.
- 3.—Anatomic dehiscence of bone.

Cholesteatoma: With progress in x-ray study and diagnosis it has become possible in many instances to identify an aural cholesteatoma by x-ray evidence, long before its presence is suspected or known clinically.

Pathology: Aural cholesteatoma may be of two types,¹⁰ primary and secondary. The primary type, probably pathologically an epidermoid tumor,¹¹ is exceedingly rare and has not been observed by the writers.

The secondary type of cholesteatoma is, however, of rather frequent occurrence reported by MacMillan¹⁰ in a series of cases to be present in as high as 68% of chronic mastoid cases examined.

Grossly, the mass is described as a laminated, pearly gray one extending into the bone structure about the mastoid antrum from which it has its origin.

Microscopically, it is covered by a capsule of

epithelial origin and contains much purulent and cellular debris in which cholesterol crystals may be identified.

The pathogenesis of cholesteatoma is somewhat a moot question, there being three major theories concerning its development.^{10, 12}

- 1.—Perforation of tympanic membrane and invasion of epithelial cells from this site.
- 2.—Transition of cells due to irritation in middle ear.
- 3.—Metaplasia of cells in region of middle ear and mastoid antrum.

However it is generally agreed the first formation occurs in the mastoid antrum and extension takes place from this point. This fact is of great diagnostic importance.

Extension is usually by erosion of adjacent bone structure due to general progressive enlargement, but some reports have shown actual invasion of Haversian structure in the bone by the growth.

The close proximity to the mastoid antrum of structures such as the labyrinth, the tegmen, the posterior canal wall carrying the facial nerve and the anterior wall of the sigmoid sinus makes early detection of this change important.

Symptomatology: Subjective symptoms directly referable to the presence of cholesteatoma may vary considerably. However the most constant symptoms which have been noted by the authors are chronic otorrhea with odor which has been resistant to local treatment and a subjective sense of fullness in the mastoid involved. Objective study often reveals polypoid formations visible in the depths of the external auditory canal or unusual collections of debris. Associated symptoms not infrequently depend upon the structures receiving the maximum pressure from extension of the cholesteatoma. The symptoms of dizziness in an individual with a chronic otorrhea always warrants close study to detect extension of a cholesteatoma toward the labyrinth. The "silent cholesteatoma," the one which may suddenly endanger the life of an individual by its erosions and extensions permitting infection easier access to more vital structures, is the one most likely to be suspected by careful roentgenographic examination in all cases of resistant otorrhea.

Roentgenographic evidence of cholesteatoma:

Classical: The presence of cholesteatoma in a mastoid process has been described as a circumscribed area of loss of bone substance extending from the mastoid antrum, having margins which are sclerotic, more so than may possibly be present in the surrounding bone substance. This change is observed in the lateral, or a modification of the Law position.

When present the above evidence is rather conclusive and positively diagnostic.

Any roentgenologist, however, studying many mastoids has been surprised when a surgeon reports to him of finding a cholesteatoma upon operative intervention in a mastoid process in which previous x-ray study (in Law position only) had not revealed change even suggesting the presence of such a pathologic process.

Obscure evidence of cholesteatoma in the routine lateral (Law) position: In 1935 one of the writers (JHG) made a review of several roentgenographic studies of mastoids examined in the Law position only, where cholesteatoma had been found at operation but not suspected on the original interpretation.

An attempt to find some sign or evidence common to all was made, without success, but in five out of nine cases reviewed the following change was common. Directly above the shadow of the external auditory meatus there appeared a small roughly triangular area of demarcated lesser density present only on the involved side, but variable in size. This change was noted and subsequently watched for and, it has proved a valuable diagnostic sign for the presence of cholesteatoma when present, in the "Law" projection.

The use of a third position: In 1936 MacMillan¹⁰ discussed the detection of cholesteatoma by the use of a basal projection, a modification of the Chamberlain-Towne position, wherein more adequate presentation of the mastoid antrum was obtained for actual measurement and comparison.

An average normal size for the mastoid antrum was given as 6 by 10 millimeters. Considering the pathology of cholesteatoma it may be reasonably concluded that abnormal well demarcated enlargement of the mastoid antrum

primarily indicates the presence of a cholesteatoma.

In the latter part of 1936 the third position was adopted as a routine procedure at the Illinois Eye and Ear Infirmary in all cases of chronic mastoiditis, and including January 1, 1941 a few more than 1400 cases of chronic ear disease have been so examined.

In the course of this study the observation regarding the size of the mastoid antrum made by MacMillan, i.e. 6 x 10 millimeters for the average normal observed in the so called Chamberlain-Towne position, has proven quite reliable in spite of the fact no precision technic was used.

In many cases, an enlarged antrum has prompted consideration of cholesteatoma which have not been operated upon but in only a few instances has cholesteatoma been suspected and not found at operation. Those cases in which cholesteatoma has not been found have always had an enlarged antrum.

In this group of cases conditions entering into the differential diagnosis have been as follows:

- 1.—Large antra which may have contained a cholesteatoma but spontaneously evacuated.

An enlarged antrum in the presence of a history of chronic ear disease when sharply demarcated must always be considered a cholesteatoma but in some instances a cholesteatoma is not found at operation. These cases must be considered spontaneously evacuated cholesteatoma into the middle ear and external canal and so far a differentiation of the presence of an active tumor has not been possible.

- 2.—Comparatively larger antra in undeveloped mastoids.

Structure of the mastoid is of primary importance as in the less well developed mastoids the antra appear larger but by actual measurement will be found within average normal limits and the sclerosed margin is absent.

- 3.—Antra enlarged by low grade inflammatory change.

The antrum enlarged by inflammatory change has been observed to be poorly defined, and the surrounding bone structure is soft in appearance compared to more distant, uninvolved bone substance.

- 4.—Overlying emissary vein.

An overlying large emissary may be traced above the margin of the petrous bone.

- 5.—Neoplasms.

Neoplasms other than cholesteatoma involving the mastoid process in this study have not centered in or about the mastoid antrum, and the margins of the involved bone substance have been irregular and follow no general contour.

- 6.—Hemangioma.

This condition has not been knowingly encountered in the group of cases studied for this paper.

To summarize:

- 1.—Roentgenographic study of chronic mastoiditis is becoming increasingly important.
- 2.—Structural and pathologic evidence together with clinical findings must be evaluated in differentiating poor mastoid development from post inflammatory change.
- 3.—Inflammation in a poorly developed mastoid is most apt to give x-ray evidence of osteomyelitis.
- 4.—Abscess formation in a mastoid process may be diagnosed by x-ray study.
- 5.—A third position in routine roentgenographic study of a chronic ear disease will greatly increase the roentgenologist's diagnostic accuracy relative to cholesteatoma.

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DISCUSSION

Dr. Fred H. Decker, Peoria: Doctors Gilmore and Urban have been in a very fortunate position to make a study of this kind. Personally, I admire anybody who is willing to study the temporal bone as

much as these men have, because to me it has always been a kind of bugbear; in fact, as you remember, Pendergrass, and Pancoast and his group, in a recent book made a statement that there is no phase of radiology that has been more neglected than that of the temporal bone.

So I think that the chief value that we should get from this paper today is the fact that they have reported an extensive series and have shown very nicely the many changes than can occur in and about the mastoid. In many ways that helps us out in classification.

We might not all agree with the method that they use. It is a lot simpler to call them, for instance, a child type, or an adult type. I don't think that covers the ground, and I think one is a lot better off to describe the mastoid development as deplotic or pneumatic, or sclerotic.

Another phase of their paper was interesting to me, and that was the high frequency of the cholesteatoma. In our own series they have been very few, and it probably should be a spur to us to look a little closer for them, although during the past year we ourselves have used the view that they described as the Chamberlain-Towne position but that we have called the fronto-occipital view, as described by Mc-Millan. It seems to be a very effective one and, to my notion, adds considerably more to the mastoid study than simply the presence or absence of cholesteatoma.

I would certainly heartily commend the authors for their paper.

SOME PROBLEMS OF BILIARY TRACT SURGERY

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The morbidity and mortality of many operative procedures have been reduced, as we have come to understand more clearly the deviations from normal physiological function which disease of certain organs brings about, and as we have also come to understand the processes by which normal, or more nearly normal, function may be re-established prior to anesthesia and operation.

This has been true in operations for hyperthyroidism, intestinal obstruction and prostatic hypertrophy where greater emphasis on pre-operative and post-operative care has led to a substantial reduction in mortality during the

past decade or two. It is equally true of many surgical lesions of the biliary tract, for the past decade has provided a much clearer picture of normal physiological function of this system and a more comprehensive picture of the abnormalities of function which may occur as the result of disease. I should like to discuss with you today a few of the problems presented by patients with gallstone disease, to present our methods of meeting them and then to leave it to you to determine whether greater attention to these factors may not provide a means of further lowering the morbidity and mortality of operations for the relief of gallstone disease and its complications.

One of the most serious problems in this field is the frequent inability to determine the extent of hepatic injury. The liver function tests have enjoyed a variable degree of approval by different investigators and by the same investigators at different times. The surgeon is interested in whether or not the liver is so seriously impaired that operation is attended by grave hazard. I doubt whether any one of the commonly used tests can, as a rule, give us more information than can be obtained from a good history and careful physical examination. The galactose tolerance test, hippuric acid conjugation, prothrombin determination, bromsulfalein retention, the ratio of free and combined cholesterol and other tests now commonly used each measure but a single function, and a marked deviation from the normal in one test does not necessarily mean that the others will be equally impaired. In fact, in our experience the reverse is often true. Some general idea of the degree of impairment of function may be had from the results obtained from a number of different tests. However, we have not always been able to find close correlation between the histologic picture and the results of function tests, and on more than one occasion we have seen a liver which gave every indication of normal function prior to anesthesia and operation become incompetent following operation. If morbidity and mortality are to be kept low, the surgeon must not be lulled into a sense of false security, and too often dependence upon function tests has tended to do this.

A considerable number of the patients with

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gallstone disease have diabetes mellitus. It is our impression that this relationship is increasing rather than decreasing. It is important to remember that the diabetes often is not diagnosed until the patient is admitted to a hospital, and it is equally important to remember that the liver stores of glycogen may be seriously reduced in these patients because of long standing hepatitis. Since the hepatic glycogen is the sole direct source of the blood sugar, a marked decrease in the glycogen stores of the liver may create a real hazard. A dose of insulin, which in the non-biliary tract diabetic patient would have but slight effect on the blood sugar concentration, may have a very profound effect in the patient whose liver cannot rapidly mobilize glucose from the diminished hepatic glycogen stores to replenish the falling blood sugar concentration brought about by the insulin action.

There is no need rapidly to control the hyperglycemia in these patients, especially if they are above fifty years of age. The precipitation of insulin shock in the elderly diabetic patient, not previously treated with insulin, may be irreversible even though large amounts of glucose are subsequently given. It is far better slowly to prepare such patients, unless diabetic acidosis is also present when of course the therapy must be more active. These patients, as a group, require the care of someone familiar with diabetes on the one hand and the pathologic physiology of hepatic dysfunction on the other.

It is now 33 years since Babcock¹, of Chicago, called attention to the frequent relationship of gallstone and cardiac disease. For many years it was believed that organisms which had a specific affinity for the gall bladder also attacked the myocardial muscle. Schwartz and Herman² believed that the cardiac disturbance was the result of fatty infiltration of the heart and that this was merely an expression of the disturbance of metabolism from which many gall bladder patients suffered.

Fitz-Hugh and Wolferth³ more recently reported certain changes in the electrocardiogram which many of these patients presented. There is often a depression and occasional inversion of the T wave and at times a slurring of the QRS interval. Weiss and Hamilton⁴ have confirmed the T wave changes and have substantiated the

conclusions of Fitz-Hugh and Wolferth that the electrocardiographic changes disappear very soon after convalescence from adequate biliary tract surgery. It is their opinion that the changes are the result of toxic disturbances in the cardiac mechanism. Every change in the electrocardiogram in these patients does not necessarily indicate serious and irreversible cardiac damage.

Many patients with gallstone disease also have pain which simulates angina pectoris. Very often the patient is denied relief from the symptoms of gallstone disease because an internist believes the risk of operation is too great. We have had the good fortune to see a number of these patients, and careful study of them often reveals the fact that the pain is rarely due to true angina pectoris. Royster and Sanders⁵ have demonstrated in one of them, for the first time I believe, that reflexes arising in the common duct may give rise to pain and other sequelae which are at times nearly indistinguishable from angina pectoris.

The pain is often typically substernal and precordial and may be referred to the left upper extremity. It is frequently preceded by a feeling of impending death, and is followed by hyperesthesia and hyperalgesia of the area to which pain was previously referred. It differs from true angina pectoris in that the attacks are not related to effort, for they usually occur at night while resting in bed. The attacks may have been present over a period of years, yet the electrocardiographic changes may be negligible. Even with these differences, on more than one occasion we have seen competent cardiologists who were loathe definitely to state that the patient did not have angina pectoris. One of the patients upon whom we operated this year had been studied by a cardiologist in this part of the country who wrote to her family physician: "God save Mrs. from the hands of the surgeon."

Patients with gallstone disease at times do have true angina pectoris and serious cardiac disease, just as do non-gallstone patients, but all precordial pain, or even changes in the electrocardiogram, do not necessarily indicate serious cardiac disease. When heart disease is present its symptoms may be accentuated by the co-existing gallstone disease, the latter frequently giving rise to recurrent distention, to constipa-

tion and to disturbed sleep by nocturnal attacks of pain and indigestion. Even patients with serious heart disease, as a rule, withstand operation well, if they are properly prepared before operation, and the risk involved in the other patients is no greater than if the pseudo-angina had not existed.

A decade ago the most serious complication of operation on a patient with common duct obstruction was post-operative hemorrhage. Until Armand Quick⁶ demonstrated a prothrombin deficiency in these patients the pathologic physiology of this hemorrhagic tendency was not known. In 1934 Dam⁷, of Copenhagen, and Almquist⁸, of this country, found that the hemorrhagic disease of the gizzards of young chicks was due to a deficiency in the diet of an accessory foodstuff which Dam named vitamin K.

Dam⁹ later showed that these chicks had a prothrombin deficiency and that the response to vitamin K therapy was a return to normal of the prothrombin concentration. It was soon determined that vitamin K was fat soluble and that the prothrombin deficiency which took place in man might well be conditioned by the absence of bile salt from the intestine resulting in the failure of absorption of vitamin K. Before Quick¹⁰ had an opportunity to test this hypothesis, Smith, Warner and Brinkhous¹¹ found it to be true.

It is now possible to prepare the jaundiced patient with bile salts and substances containing naturally occurring vitamin K₁ or K₂, or to use one of a variety of synthetic substitutes before operation. Approximately 80 per cent of the patients so prepared for several days prior to operation will respond favorably, but from 18 to 20 per cent have such severe liver injury that even though large amounts of bile salts and the most active preparations of K are administered, the prothrombin concentration does not respond satisfactorily and often does not respond at all. When this occurs, fresh blood or plasma should be used to control the tendency to hemorrhage. If operation can be delayed, diet may be used for some days in an effort to improve hepatic function. We have done this on several occasions with favorable results.

One of the most serious complications of operation on the patient with longstanding gallstone

disease, with or without involvement of the common duct, is the degeneration or necrosis which may follow the use of hepatotoxic anesthetics. Ether, contrary to general opinion, may cause serious hepatic degeneration and even necrosis of the liver. Nitrous oxide may, under certain conditions of anoxia, lead to such serious injury that the histologic picture is nearly indistinguishable from the necrosis induced by chloroform. Even ethylene has been shown to effect the hepatic function, and no one has satisfactorily demonstrated that cyclopropane is entirely harmless.

Many of the severe reactions which biliary tract patients at times have following operation are without doubt due to varying degrees of degeneration and necrosis conditioned by the anesthetic agent and the method of its administration. These reactions are often called minor degrees of "liver shock." We are convinced that spinal anesthesia with procaine, in which major depressions of the blood pressure are prevented by the preliminary use of long acting vasoconstrictor drugs, is at present the safest anesthetic for these patients. Even with this method of anesthesia the patient should be prepared so as to minimize hepatic injury. Rarely indeed is operation an emergency.

For years we have been led to believe that a high concentration of hepatic glycogen would protect the liver from injury by hepatotoxic anesthetics. At first we fed patients a high carbohydrate diet, and then as the result of debatable reasoning, we gave these patients glucose intravenously for several days prior to operation. Many of us then sat back smugly confident that we had done our best. Some of us were even guilty of stating, as Banks and Sears¹² have recently done, that hepatic regeneration would take place more rapidly following injury upon a carbohydrate diet than upon any other. It is high time that we critically review the evidence upon which these assumptions are based. I would not for a moment deny that the program we have been using has helped; but has it done the best that we are capable of? In the first place, 3000 c.c. of a 5 per cent solution of glucose a day provides the patient with but 600 calories. If no food is given by mouth is it possible that glycogen can be maintained in the liver for any

time? Can we materially affect the composition of the liver unless we supply the patient with a sufficient amount of food to meet energy requirements plus an additional amount for storage? The glucose so given will to a degree prevent the breakdown of body tissues to supply energy requirements, but that is all. The loss of weight of our patients during pre- and post-operative care is usually an expression of the extent to which we fail to meet their energy requirements. Of this there can be no doubt.

Evidence which we have obtained¹³ and which has since been confirmed and extended by several observers^{14, 15}, points to the fact that protein and not carbohydrate directly protects the liver from injury by a variety of hepatotoxic agents. I can summarize our work by stating that a liver with a high lipid content and a low protein content is maximally susceptible to injury by these agents. This explains why the liver of undernutrition or starvation is so susceptible to damage. Conversely, the liver with a low content of fat and a large amount of available protein is maximally protected against injury. Even in the presence of considerable amounts of lipid, an adequate intake of a suitable protein for some time prior to anesthesia and operation will provide protection from such an injurious agent as chloroform.

We have known that the livers of patients with long standing biliary tract disease frequently contain large amounts of fat. One objective of pre-operative therapy must be to rid the liver of as much of this fat as possible. This can, in part, be achieved by the deposition of glycogen, for usually as glycogen is deposited in the liver fat is displaced from it. This process is known as the fulfillment of the Rosenfeld¹⁶ hypothesis. Data which we have obtained demonstrate clearly that protein will do this much more rapidly than carbohydrate, for the addition of protein to the extent of 28 per cent of the total calories of an otherwise high carbohydrate diet will, in seven days, result in a decrease in the liver lipid concentration in the presence of ductal obstruction similar to that obtained on high carbohydrate-low protein diet in fourteen days.¹⁷ Protein, therefore, is useful from two points of view, its direct protective capacity, which is probably due to certain components of the protein

molecule, and to its capacity to rid the liver of excess fat.¹⁸

We are using in our patients, a diet in which the total calories consist essentially of 70-75 per cent of carbohydrate, 20-25 per cent of protein and not more than 5 per cent of fat. It is, we believe, the ideal pre-operative diet for these patients. It can be fed by tube if the patient will not eat. The carbohydrate in large part comes from the banana and the protein from Casec or cottage cheese or a protein digest such as Aminoids. The patients receive from 2500 to 4500 calories daily for from five to twenty-one days before operation. Biopsies from the liver of these patients operated on under spinal anesthesia demonstrate that we can by this method condition a liver to minimal injury.

If oral or tube feeding is impossible, then glucose and plasma can be given intravenously. The addition of plasma will provide a better hepatic composition than can be obtained from glucose alone, but even this combination will not provide as satisfactory a condition as can be obtained by oral or tube feeding. If sufficient food is not ingested by mouth, intravenous therapy should be used as an adjunct.

There are certain problems concerned with the operation which must be kept in mind. Injury to the ductal system can often be repaired but injury to the hepatic artery requiring ligation will inevitably lead to hyperthermia, a falling blood pressure, a rapid thready pulse, hypoglycemia and death. This is commonly known as "liver shock." While life is compatible with a very slow occlusion of the hepatic artery, its acute occlusion is invariably associated with death. The greatest care must, therefore, be exercised in dissections of the right free border of the gastro-hepatic omentum.

The decision of when to open the common duct is often difficult to make. It should always be opened if the patient is jaundiced at the time of operation, or if there is a history of previous jaundice. It should be opened if it is greatly dilated or if the cystic duct is short and large and the gallstones small. Finally, it should be opened if, after all considerations, any doubt as to the advisability of this additional procedure still persists. The time to open the duct is at the first operation.

When common duct drainage has been established, it is the height of folly to permit large amounts of bile to drain into a bottle at the side of the bed. No amount of glucose and salt given intravenously can compensate for the diversion of bile from the intestinal tract. Even though the bile may have a low bile salt content, it will help to bring intestinal function back to normal and the asthenic states so frequently observed during periods of excessive bile diversion rarely will be encountered if excessive bile loss is not permitted. Bile is not solely an excretory product; it plays an important part in the intestine in the activation of lipases, the emulsification and absorption of fats, and the absorption of the fat soluble vitamins such as vitamin K. We must constantly attempt to restore normal function rather than inhibit it.

Diet is just as, or even more important after operation as before it, for it is then that regeneration can most readily take place. We do not yet know what the ideal postoperative diet is, but it can be accepted without controversy that cellular regeneration cannot take place rapidly on a diet inadequate in protein. The major question at present is what protein will best facilitate repair. Data which workers in our laboratory are now obtaining strongly suggest that when liver repair is desired liver protein is the best substance to provide this.

Vitamin K therapy should be continued until wound healing is nearly complete. The fact that the prothrombin concentration was normal prior to operation should never be accepted as evidence that it will remain so after operation. It has been our experience that it usually falls, even when the physical trauma to the liver has been minimal. Occasionally a liver that responded well to vitamin K therapy prior to operation will fail just as completely to respond following operation. Such a liver has been seriously injured, and it may be necessary to resort to blood or plasma transfusions to prevent or control hemorrhage.

The common duct tube should never be removed until a cholangiogram has been made. Our complacency is disturbed from time to time by a graphic visualization of a stone we have failed to remove. It is best to discover this when it is still possible to attempt the solution of the

stone through the tube which leads to it.

These are a few of the problems which we are daily meeting. Their control is often not difficult. There are, of course, many others such as those presented by acute infection and cystic duct obstruction, by stricture, acute cholangitis and malignancy which I have not had the time to review with you. Certain of the principles I have attempted to cover apply, however, equally well to these conditions.

Applying these principles in our own clinic has led to a very substantial reduction in mortality. From 1922 to 1929 the mortality of operations for common duct obstruction was 22 per cent, from 1935 to 1938 11 per cent, and from 1938 to 1941 it was but 2.6 per cent. There have now been operated on, on my service, a consecutive group of 629 non-jaundiced patients subjected to cholecystectomy with or without common duct drainage with but a single death. This mortality is not due to great operative experience, for a very considerable number of these patients were operated on by my surgical fellows. It is, in the main, the result of having obtained a better picture of the pathologic physiology of biliary tract disease and of attempting to restore more nearly normal function prior to operation and to maintain and improve this subsequent to operation.

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RIGHT OF A COUNTY MEDICAL SOCIETY TO DISCIPLINE MEMBERS

A recent decision by the District Court of Appeals in the State of California regarding the right of County Medical Societies to discipline members and to expel or suspend from membership in the society reiterates the general proposition of law that the Courts will not interfere with the medical society's right to expel a member after a fair trial on charges, according to the procedure established in the Constitution and By-Laws of the Society. (Smith vs. Kern County Medical Association, April, 1941.)

In this case a dispute had existed between Dr. Smith and the majority of the members of Kern County Medical Society for some time regarding the practices engaged in by the staff of Kern County General Hospital. The majority of the members of the county society maintained for a long time that the matter of carrying out medical practice in Kern County Medical Hospital was such that patients did not receive adequate service and prevented reasonable competition among physicians in the community.

In 1932 the membership of the county society passed a resolution to the effect that, since the manner of rendering service to patients in the said hospital conflicted with the principles of medical ethics of the American Medical Association, all members of the County Society should resign from the staff of Kern County General Hospital until such time as the institution is conducted in such a manner as to make it eligible to apply as an accredited hospital rating from the Council on Medical Education and Hospitals of the American Medical Association and the Committee on Hospitals of the American College of Surgeons. The resolution further provided that failure of any member of the county society to resign from the staff of the hospital would make such a member liable to disciplinary proceedings. The same general resolution was passed each year until 1939.

In 1932 certain charges were filed against Dr. Smith and in 1933 other written charges were filed against him. No action was taken on either written charge.

In 1935 written charges were made against Dr. Smith to the effect that he was violating the principles of medical ethics of the American Medical Association by disposing of his services under conditions that make it impossible to render adequate service to his patients and also that he disposed of his services under conditions which interfered with reasonable competition among physicians in the community.

These charges were duly served upon Dr. Smith and a time for hearing was set by the Committee on Grievances of the society. Dr. Smith did not appear at the hearing. The Committee recommended that Dr. Smith be expelled from the society. The Board of Directors of the society sustained the action of the Committee on Grievances and voted Dr. Smith's

expulsion from the society. At a later meeting of the society the great majority of the members present voted to expel Dr. Smith. However, only 19 of the 38 members of the society were present at the meeting.

Dr. Smith appealed to the California Medical Association and the American Medical Association. Both appeals were decided adversely to him. He then brought a mandamus suit against the County Medical Society to compel the Society to reinstate him as a member.

The Court held that a majority of the membership was necessary to constitute a quorum and that, since a majority of the membership was not present at the society's meeting at which Dr. Smith was expelled he was entitled to reinstatement as a member of the Society.

However, in deciding the case the Court gave a concise statement of the rights of Medical Societies to discipline membership. The court said:

"* * * the courts will not interfere with the internal economy, rules of membership, rules of procedure or discipline of members of a strictly fraternal or social, unconstitutional, voluntary organization in which the members have no severable or divisible priority interest in any portion of its property and where the member's interest in its property is only an incident membership. * * * It is only when there has been an unreasonable and arbitrary invasion of private rights that the courts will interfere and then generally the inquiry will be limited to an investigation of the question of whether or not the society has violated its own rules of procedure. * * * In making such inquiry the Courts will be governed by these well established rules, that the constitution and by-laws of such voluntary association constitute a contract between the Association and its members * * *; that when the accused has been given a fair trial before the tribunals of the Society, according to the procedure established by it, the courts will not interfere; * * * that the proceedings before trial committees are not bound by technicalities; that membership in such an Association is not a right that can be demanded but is a privilege that may be drafted or withheld on the terms and conditions imposed by the Association. * * *"

The court also held that the fact that members of the Committee on Grievances and the Board of Directors were prejudiced against Dr. Smith would not prevent such Committees from performing their duties under the constitution and by-laws of the society.

Some members of the medical profession may have gotten the impression that the result of the decision in the anti-trust suit against the American Medical Association and District of Columbia Medical Society prevented county and state medical societies from pursuing disciplinary proceedings against their mem-

bers. That is not the effect of the anti-trust decision and as a matter of fact the charge of the court to the jury sustained the right of medical societies to discipline their memberships for breaches of principles of medical ethics. However, the court did instruct the jury in the anti-trust suit that, if the defendants were conspired to injure members or if the societies conspired to restrain trade, such action would be illegal.

The result of the anti-trust suit and the above expressed case of *Smith vs. Kern County Medical Association* is to give the county and state medical societies power to discipline members, providing that the procedure outlined in the constitution and by-laws of the society is followed and provided that the action is not a conspiracy on the part of the people involved.

From *Northwest Medicine* July 1941.

BETTER BABY

I am a modern baby who must face
Inheritances of the human race;

But medicine and science both combine
To make this prophylactic life of mine.

I'm glad I need not worry over sties
Because of argyrol dropped in my eyes.

And fingerprints will guard my name from doom,
While I enjoy my air-conditioned room.

At breakfast time I'm taken from my crib
To don my waterproof, transparent bib.

Then mashed bananas, milk, tomato juice,
Strained vegetables in cans all serve my use.

Tucked in my sleeping bag, the zippers run
Up to my neck, while napping in the sun.

But I don't mind if days are cold and damp,
I eat my sun, or get it from a lamp.

My arm of punctured serums has a sore
To keep that yellow sign from off our door.

And relatives who in my glee would bask
Must hide behind a germ protecting mask.

But streamlined gadgets cannot alter me,
My temper is old-fashioned as can be.

And when I shriek my lowdest false alarms,
I want to snuggle close in mother's arms.

—Reba Ray, *New York Sun*

SOLDIERS HEART

British medical officers are being prodded, it appears, by the Government on account of the losses in troop efficiency caused by the number of casualties from "soldiers heart." Not only the losses due to soldiers on the sick list but also related losses — doctors, nurses, attendants caring for these casualties; and the money losses incident to the long convalescence and eventual life time pensioning involved in almost all cases of "soldiers heart."

The latest British medical journals received in this country publish articles and other comments on this subject which has been repeatedly discussed in these journals, following the beginning of World War II. The British name for soldiers heart is "effort syndrome."

The likelihood that cases of soldiers heart would unwittingly multiply in the greatly expanded American Army has been discussed during the past few months at convocations of several state and national medical associations. Medical officers of the Army have addressed the members of these associations on the subject of soldiers heart.

The latest issues of the *British Lancet* and *British Medical Journal* have shed more light than heretofore on methods for the detection of soldiers heart in men about to be inducted into the services to the end that such men may be rejected at the primary examining stations. No effort appears to have been made to ascertain the cause of soldiers heart. Indeed, there is reason to believe that medical officers consider that soldiers heart is not a disease at all but rather it is a manifestation of heredity; the result of unaccustomed strain; or debilitating illness.

Soldiers heart has been a "headache" to Army doctors, especially in war, during the past three quarters of a century. It plagued the medical men in the War of the Secession. In World War I, British army doctors put 70,000 soldiers on the sick list with "cardiovascular diseases." Of this number, only 10,000 actually had heart disease while the balance were afflicted with "soldiers heart."

As a direct result of the acceptance of soldier heart applicants into the British Army in the last war, forty-four thousand of these soldiers were made pensioners for life.

The apparent confusion with regard to requisite knowledge to enable medical officers to reject men afflicted with soldiers heart is markedly reflected by the widely varying names which have been tacked onto this affliction: "irritable heart;" athlete's heart;" "effort syndrome;" "soldiers heart;" and "neurocirculatory asthenia" which is associated with morbid fatigability; with irritation of the nervous system.

Paradoxically, it seems a soldier afflicted with soldiers heart does have a perfectly good cardiac organ in itself but it "acts up" under only ordinary strain and renders the man unfit for normal duty.

The practical inability of medical officers to detect

cases of soldiers heart when recruits are being examined appears to be due to the fact that the heart itself is healthy; it "pounds and palpitates" in circumstances where normal soldiers are unaffected.

The sure indications of soldiers heart are apparent after the men afflicted with it are already in the Army which is bound thereafter to undertake their hospitalization — short breath; anxious face; rapidly acting heart; left breast distress; dizzy. The British army records show that only 15 per cent of soldiers heart cases ever recover.

British medical officers have been instructed to watch for soldier heart cases at primary examination stations, the following "symptoms" are listed — the markedly non-athletic type; men abnormally predisposed to sedentary life; men who are non-smokers and abstainers; men having unusually low incidence to exposure to venereal.

Men having soldiers heart are in reality nervous weaklings, a condition which does not necessarily impair their heart, lungs, and other vital organs nor their vision, hearing, etc.

Men afflicted with soldiers heart stack up as normally healthy persons while being examined in the primary examination station.

—*Army and Navy Register.*

AVAILABLE AT LOWER COSTS

Some of the advocates of compulsory sickness insurance argue that this system should be adopted now as a defense measure. Apparently they are unaware of the more fundamental medical defense projects which are lagging for lack of funds.

The production of blood plasma is a striking example. The Army desires 50,000 quarts a year. As Dr. Morris Fishbein has pointed out, this requires 200,000 donors. To obtain that number of qualified subjects, at least 600,000 persons must be examined, physically and serologically. This would not be a very great expense, compared to the billions which are tossed about so lightly at Washington, but so far the government has made no move to pay for such examinations.

On the same subject, the processing of blood plasma requires special apparatus. At present only five machines are available for this purpose in the entire country. If the government has ordered more, we have not heard of it.

Even such immediately important fields as aviation medicine are not being explored to their limits because grants are made in occasional small sums where a couple of millions are needed.

If the government is having difficulty in financing these unquestionably urgent defense measures, how can it even consider compulsory sickness insurance?

Anything could be a "defense measure" by the definition which includes compulsory sickness insurance in this term. Actually there is nothing obligatory prepayment would supply which is not already available at lower cost.—*New York Medical Week.*

HOW TO OVERCOME BREATHING BY MOUTH WHILE ASLEEP

About the only practical measure to help overcome breathing through the mouth during one's sleep is a sling or bandage that will hold the jaw closed during the night, *Hygeia, The Health Magazine* advises in a recent issue in answer to an inquiry.

"Some people find a solution by going to sleep in a different position — on the side instead of on the back," *Hygeia* says. "But, since most people change positions frequently during sleep, this does not always help Slings are often worn by chronic mouth breathers — after the removal of an obstruction in their nasal passageways — until they learn to breathe through their noses again. If such a bandage is used, it must be tight enough to keep the mouth closed but not so tight that it will interfere with the circulation of the blood to the skin and thus become unpleasant or painful. If an elastic bandage is used, it must be relatively loose. However, a physician should inspect the nasal passages. These passages may have an obstruction which will permit nasal breathing during waking hours, but during periods of relaxation the obstruction may be sufficient to cause a natural shift to mouth breathing."

Examination of applicants for industrial employment presents an invaluable method for detecting, and thereby isolating, tuberculous infection in the general population.—A. C. Reid, M. D., Jour. Indust. Hyg. and Toxicol., Oct., 1940.

Dust swept under the sofa disturbs no one — until it is discovered, nor does tuberculosis hidden from public view.

Health is the greatest of all possessions; a pale cobbler is better than a sick king.—Bickerstaff.

NEW EDUCATIONAL FILM AVAILABLE FOR SHOWING

Under new rules laid down by the American Academy of Pediatrics, their new educational-to-the-public film, "When Bobby Goes to School," may be exhibited to the public by any licensed physician in the United States.

All that is required is that he obtain the endorsement by any officer of his county medical society. Endorsement blanks for this purpose may be obtained on application to the distributor, Mead Johnson & Company, Evansville, Indiana.

Such endorsement, however, is not required for showings by licensed physicians to medical groups for the purpose of familiarizing them with the message of the film.

"When Bobby Goes to School" is a 16-mm. sound film, free from advertising, dealing with the health appraisal of the school child, and may be borrowed without charge or obligation on application to the distributor, Mead Johnson & Company, Evansville, Indiana.

Clinical-Pathological Conferences

J. J. Moore, M.D., Department Editor.

Beginning with this issue of the Illinois Medical Journal it is our purpose to present material each month obtained from the large number of clinical pathological conferences held regularly in the hospitals of Illinois. It is obvious that only a fraction of these cases can be published. Cases will be selected for their general interest and for their diagnostic problems.

The pathologists are appreciative of this new outlet for publication of much instructive material which would be limited to presentation before one hospital staff.

It is quite fitting that the first cases selected should be from the Research and Education Hospitals of the University of Illinois College of Medicine.

PRESENTATION OF CASES BY

SAMUEL A. LEVINSON, M.D.

From the Laboratories of the Research and Educational Hospitals, University of Illinois College of Medicine, Chicago.

CONSTRUCTIVE TUBERCULOUS PERICARDITIS

ABSTRACT OF HISTORY

Past History. A 30 year old white male was admitted to the medical ward of the Research and Educational Hospitals with the complaints of pleurisy with effusions, duration 5 years; substernal pain and dyspnea for 2 months. Five years prior to admission to the hospital patient developed a pleurisy with effusion. He was immediately hospitalized and treated for the effusion after which time he was removed to the Municipal Tuberculosis Sanitarium where he re-

mained for four months. The right pleural cavity was aspirated several times and the laboratory tests for tuberculosis were performed with consistently negative reports. The chest trouble persisted and about two months prior to admission, a substernal pain developed. His family physician informed him that he had a pericarditis and his heart was enlarged. On admission his

Physical examination revealed a B.P. 112/86; P. 72; R. 24; and T. 98.6°. Head and neck were essentially normal and there was no gross deformity of the chest wall. The heart was enlarged both to the right and left but there were no audible murmurs and the heart tones were of good quality and regular in rhythm. Examination of the lungs revealed a generalized tactile fremitus with dullness below the 5th interspace on the right side and hyperresonance on the left side. Breath sounds were decreased over the entire right lung field and were louder and more distant on the left. The diaphragm was movable on both sides. The abdomen was essentially normal.

Laboratory Findings

B.P.	Normal Breathing	Pulse Pressure	Expiration	Inspiration
	112/94	18	112/94	108/88
	116/94	22	112/98	108/96

Vital Capacity: 2000 cc. (58% normal)
1775 cc. (50% normal)
1300 cc. (38% normal)
1100 cc. (24% normal)

Venous Pressure 20.5 cm. (normal 6-10)

Ether time 12.6 seconds (normal 4-6)

Decholan 23 seconds (normal 10-18)

X-ray showed cardiac movements to be slight to pulsation. Roentgenkymogram. Limitation motion involving left ventricle.

E.K.G. was significant for a pericarditis.

Peritoneoscopy 8000 cc. clear yellow fluid. S.G. 1020. Total protein 3.35%. Lympho. few polys and r.b.c. No carcinoma or tbc. noted. Later 3400 cc. removed. S.G. 1015; total protein 3.7%. Bromsulf. 5 minutes 60%. 30 minutes 15%. Clotting time 5 min. Bleeding time 90 sec. Prothrombin 68% normal. Hg1b. 13 gm. R.B.C. 5.2; W.B.C. 13.2. Urine examination essentially normal.

Presented before the Illinois Society of Pathologists at the 101st meeting of the Illinois State Medical Society, Chicago, May 20, 1941.

NPN	S.A.	S.G.	Icterus Index	Wassermann and Kahn negative
27.5	4.15%	2.85%	10	
	4.0	2.1		
	3.6	2.8		
	3.6	2.7		

Clinical Impression. Tuberculous infection of the right lung with an effusion and a pericarditis.

Hospital Course. The diagnostic procedures were continued in the form of a sputum and stomach wash for acid fast organisms all of which were negative. Guinea pig inoculation, (stomach wash), however, proved to be positive for tuberculosis. The patient had a "Pulsus Paradoxus" and there was a continued pulse pressure reduction and a decrease in the vital capacity. Developed induration left arm and thrombosis. Temperature elevated. Because of the increased ascites and positive evidence of constrictive pericarditis surgery was performed and a portion of the pericardium over the right ventricle was removed. On the first post operative day surgical emphysema developed involving the neck, face and upper extremities. Patient's course was steadily downward and he expired at the end of the first post operative day.

NECROPSY EXAMINATION

The body was that of a well developed and well nourished adult white male and there was a subcutaneous swelling of the periorbital tissues of the left eye causing its closure. There was also a generalized subcutaneous emphysema of all the tissues above the waist line and including the upper extremities. There was a recent curved surgical incision 33 cm. long in the region of the left pectoral area and it extended along the left mediastinal margin for approximately 10 cm. and then curved to the left beneath the nipple for approximately 23 cm. Just medial to this incision there was another incision 4 cm. in length through which a rubber drain projected. Superior to the sternal notch there was another skin incision 6 cm. in length and the site of a recent tracheotomy. The chest was distended and symmetrical and the abdomen was also distended and there was a pitting edema of both lower extremities.

Abdomen. There was approximately 1200 cc. of a cloudy grayish yellow fluid and the peritoneal surfaces for the most part were smooth and semi-glistening with the exception of a small

area over the region of the ileum proximal to the ileocecal valve. In this area the serosal surfaces were studded with small white elevated nodules scattered over an area approximately 4 cm. in length. A similarly studded area was seen on the abdominal surface of the diaphragm on the right side. The diaphragm arched to the fourth interspace on the right and the fifth interspace on the left side.

Chest. Beneath the curved surgical incision mentioned previously there was a portion of the left third, fourth, fifth and sixth ribs which had been removed and the pre-pericardial tissues were exposed. The left lung lay collapsed with the exception of some fine fibrous adhesions in the apical portions and there was approximately 400 cc. of clear straw colored fluid in the pleural cavity. The right pleural cavity was obliterated by fibrinous adhesions. There was a surgical opening in the pericardial sac exposing the apical portion of the right ventricle of the heart. The pericardial sac was markedly thickened and its inner surface was either covered by irregular masses of yellow cheesy material or closely adherent to the epicardium by irregular amounts of the same yellow material plus fibrous adhesions. The pericardial cavity for the most part was obliterated.

Heart weighed 225 gm. The epicardium was covered by an irregular layer of yellow fibrinous material and the subepicardial fat was indistinct. The myocardium was red brown in color and measured up to 7 mm. in the left myocardium and the granulation tissue covering the right epicardium was 2 mm. in thickness. There was a similar granulation tissue which was 2 mm. in thickness covering the left myocardium. The various leaflets of the heart were grossly uninvolved, and the aorta did not show any gross remarkable changes.

Lungs. The right lung for the most part showed a diffuse fibrosis along the vertebral border while the anterior portion was grayish blue in color and there were ragged bits of fibrous tissue adherent to the visceral pleura. The surface made by cutting showed that there were many bronchioles which were dilated and bulged above the surface and in the parenchyma of the lung there were small miliary tubercles.

The left lung was covered on the posterior aspect by pleural adhesions and multiple miliary

tubercles were scattered on the visceral pleura. There was a small laceration of the visceral pleura which involved the lung parenchyma in the lower portion of the anterior surface of the upper lobe. The area was discolored by hemorrhage and had two small bullae. This latter area was in the vicinity of the surgical incision in the anterior chest region. The surface made by cutting of the left lung also showed numerous miliary nodules scattered throughout the parenchyma.

G. I. Tract was grossly normal except in the lower 30 cm. of the ileum there were three ulcerations of the intestinal mucosa. They had elevated margins which were slightly undermined and their greatest diameter was 2 cm. in the longitudinal direction of the lumen. The base of the ulcer was grayish red in color with small yellow tubercles in the center. These tubercles corresponded with those mentioned that were seen on the serosal portions of the intestine in this region. There was a similar ulcer in the cecum just distal to the ileo-cecal valve and resembled in all respects the ulcer described in the terminal portion of the ileum.

The other organs were essentially normal.

Histological section from the myocardium was demonstrated to show the area of necrosis which was surrounded by a zone of lymphocytes with many Langhans giant cells and in the periphery of the section was the myocardium.

Comment. We have recently observed that in our series of constrictive pericarditis we have found that tuberculosis was the etiologic factor more frequently than rheumatism. We pointed out to you that there was fluid in the right lower quadrant of the abdomen with ulcerative tuberculous lesions in the terminal ileum and in the cecum, as well as the pathology demonstrated in the lungs, and that we might here be dealing with an exudative form of tuberculosis. The tuberculous pericarditis is often associated with a pleuritis and a peritonitis. Also, the constrictive pericarditis which acts as a tamponade around the heart was a form of concretio cordis. The French have also described a cirrhosis of the liver which is associated with tuberculosis, particularly tuberculous pericarditis, and this they have called a cardio-tuberculous liver.

ANATOMICAL DIAGNOSIS

1. Pulmonary tuberculosis.

2. Tuberculous pericarditis.
3. Recent surgical removal of part of the pericardium.
4. Fibrous replacement of the right ventricular musculature.
5. Fibrous obliteration of the right pleural cavity.
6. Hydrothorax, left.
7. Bronchiectasis.
8. Pneumothorax, left.
9. Tuberculous peritonitis.
10. Tuberculous ulcers of the ileum and cecum.
11. Ascites.
12. Surgical emphysema of the torso and upper extremities.
13. Pitting edema of the lower extremities.
14. Recent surgical incision in the left pectoral area.
15. Recent tracheotomy.

DISCUSSION

Dr. Warren H. Cole, Chicago: From a surgical standpoint there are several points we can bring up which are interesting and a bit confusing. In the first place I want to be sure to differentiate between constrictive and adherent pericarditis. The results of operation on the constrictive type are perhaps the more dramatic. Most of these cases are due to tuberculosis; that is our experience and many reports in the literature agree to this assumption. The diagnosis of constrictive pericarditis is made with difficulty. These cases are confused with two lesions; congestive heart failure and hepatic cirrhosis. In brief, differentiation may be made as follows: in the first place, the heart is relatively normal in size in constrictive pericarditis whereas in congestive heart failure it is very large. In constrictive pericarditis you will have an ascites preceding the edema of the extremities, whereas in congestive heart disease edema precedes the ascites. In the former disease a paradoxical pulse is almost constantly observed. In hepatic cirrhosis the heart will probably be of normal size; a delayed circulation time and an increased venous pressure will be present.

In the case just presented, an active pulmonary tuberculosis was known to be present and progressing; we suspected that the pericarditis was likewise active and not completely resolved into a fibrous type. For that reason I suggested to Dr. Keeton that operation be postponed. About two weeks later we received a hurried call and were told that if we did not do something to relieve the cardiac embarrassment the man would die. We agreed to take the chance, and at operation found a tuberculous pericarditis with an accompanying cardiac tamponade affecting the ventricles primarily. This, of course, was not a typical case for resection of pericardium, but we thought it best to remove the roof of the pericardium and

decompress the heart, hoping it would relieve the heart sufficiently to allow recovery from his pulmonary lesion.

The mechanism of death was very interesting and to me confusing. Dr. Levinson told you about the emphysema that developed in the neck and the mediastinum which was the cause of death. Where did that air come from? I think the pleural reflection was in such a position that with each heart beat a little air was forced into the mediastinum from the drainage site, giving rise to a constantly increasing emphysema. Omission of the drainage site might have eliminated the emphysema. Yet if you do not drain these cases you get an acute cardiac tamponade — so you are in reality between two fires.

CARCINOMA OF THE HEAD OF THE
PANCREAS WITH METASTASES

ABSTRACT OF HISTORY

This 54 year old white male was admitted to the hospital with complaints of diffuse abdominal pain and a weight loss of 30 lbs. during the previous four months. The abdominal pain was more severe on the side upon which he was lying. Past history revealed that his father, a sister and brother died of tuberculosis. His mother died of P.A. and another sister of carcinoma of the stomach. He also had typhoid fever at the age of 16.

Physical examination on entrance; T. 100; P. 112; R. 24; B.P. 110/60. At the base of the left lung there was dullness, decreased tactile fremitus, a friction rub and subcrepitant rales. The liver was enlarged four fingers and there was muscle rigidity over the entire upper ab-

domen. There was tenderness in the right and left lumbar regions.

Laboratory Findings. X-ray of the abdomen and G.I. Tract essentially negative. Chest x-ray showed collapse of left lung and a small localized pneumothorax about the apex. Three fluid levels noted on the left, the lower one at the level of the 11th rib dorsally. Later films showed increased density suggestive of pneumonic infiltration.

R.B.C. 3.83; W.B.C. 22.9; hemoglobin 60%. Wassermann and Kahn negative. Stools negative for blood and amoeba, agglutination reactions negative. Chest fluid bacteriologically negative.

Clinical Impression. The differential diagnosis was between a pneumonia, subdiaphragmatic abscess, hepatic abscesses, and a malignancy of the liver.

Hospital Course. On aspiration of the left chest 1000 cc. of serosanguinous fluid was obtained. T. up to 101°; P. 120 and R. 40. Patient had 8-10 stools daily for a while and these were examined repeatedly for amoeba with negative results. Proctoscopic examination was also negative. He showed no improvement on treatment with sulfapyridine, emetine, blood transfusions and nasal oxygen. On 2/5/41 patient was explored with a left subcostal incision. The liver was found to be studded with metastatic nodules one of which was taken for biopsy. Biopsy revealed an adenocarcinoma most likely of pancreatic origin. Patient continued to go downhill and expired on the seventh post operative day.

Blood Chemistry

Glucose	N.P.N.	Urea N.	Creatinine	Chlorides	CO ₂	Icterus Index
95	61	40.6	1.05	470	55	33
	38	25.0		452	66	77
	60	34.2		467	81	
	26	12.4		455	74	
	83.3					

Serum Albumin	Serum Globulin	Serum Amylase	Fibrinogen
3.1%	1.9%	276 mg. glucose 100 cc.	0.37%
3.0	1.84	182	
3.0	2.4	523	
2.9	2.1	229	
2.9	1.7	184	
2.7	2.2		

NECROPSY EXAMINATION

The mucous membranes were pale and had an icteric tint. The tongue and mucous membranes were covered with sordes. There was a marked generalized wasting of the subcutaneous fat, as well as an icteric tint of the skin of the entire body. There was a recent subcostal surgical incision in the left upper portion of the abdomen which was 8 cm. in length, as well as a marked pitting edema of the lower extremities.

Chest. The right lung was firmly adherent to the chest wall by dense fibrinous adhesions. The left lung lay collapsed and was bound down to the lateral thoracic wall in two separate areas by dense fibrous adhesions, at about the level of the third rib and the fifth rib. This formed three separate pockets, one at the apex, at the mid portion and just above the diaphragm. Each of these pockets contained a varying amount of dark cloudy yellowish red fluid totaling approximately 600 cc. in the entire left pleural cavity. The pleural surfaces were studded with numerous grayish white tumor nodules that measured 2-3 mm. in diameter.

Abdomen. The abdominal cavity contained approximately 1000 cc. of cloudy blood tinged fluid. The intestinal loops lay free and were moderately distended. The liver extended 7 cm. below the costal margin in the right anterior axillary line. There was a large globular tumor which measured approximately 6 cm. in diameter that was palpated in the region of the head of the pancreas.

Heart. The pericardial sac was smooth and had an icteric tint and the pericardial cavity contained 30 cc. of a clear yellow fluid. The heart weighed 280 gm. and the epicardium was studded with numerous grayish white tumor nodules measuring 2-3 mm. in diameter. The myocardium was softer than normal in consistency and had a dull tan brown color. On the free edge of the posterior mitral leaflet there was a large friable warty vegetation that measured 1 cm. in diameter and adjacent to this there was similar smaller vegetations up to about 5 mm. in diameter. Similar deposits were seen on the posterior wall of the left atrium and on the aortic cusps. The endocardial surfaces had an icteric tint.

Lungs. The right lung was partially collapsed and was flabby and airless. The left lung was collapsed, flabby and airless and the pleura was thickened to about 2 mm. and studded with numerous grayish white tumor nodules over the entire surface.

Liver weighed 3330 gm. It was grossly enlarged and the entire surface was studded with numerous tumor nodules that varied in size from 2 - 4 cm. in diameter. Some of these have a grayish white color with a central depression. These centers have a pinkish red hemorrhagic appearance. The liver itself was firmer than normal in consistency and the grayish tumor areas were firm. The uninvolved portion of the liver was smooth and had a dark greenish tan color. The surface made by cutting revealed numerous tumor nodules to be scattered throughout the liver parenchyma. The gall bladder and its ducts were grossly uninvolved except for several gray white tumor nodules 2-3 mm. in diameter which were adherent to the outer surface of the fundus of the gall bladder. The peripancreatic lymph nodes and the nodes surrounding the bile duct were quite enlarged and firm and the nodes in the vicinity of the bile ducts compressed the ducts. The bile ducts were dissected out and found to be grossly uninvolved.

Spleen weighed 210 gm. It had a smooth slate colored capsule and was firm in consistency and in the superior pole of the spleen there was a hemorrhagic infarct. There was also a small accessory spleen 1 cm. in diameter which was adjacent to the tail of the pancreas.

Pancreas and tumor mass weighed 330 gm. The primary tumor was obviously in the head of the pancreas which was grossly enlarged to a diameter of 8 cm. The tumor was hard, gray white and on section showed numerous hemorrhagic areas scattered throughout. There were also several bright yellow flakes 1-2 mm. in diameter which grossly appeared to be areas of necrosis on the surface of the pancreas. The body and tail of the pancreas were infiltrated with small grayish white tumor masses.

Adrenal glands weighed 20 gm. and were grossly uninvolved.

Kidneys. Both weighed 370 gm. and were grossly unchanged except for several healed anemic infarcts.

G.I. Tract was grossly unchanged except in the region of the ampulla of Vater which was firm and infiltrated on its outer portion with tumor tissue.

Thyroid gland was grossly normal.

Histological section was demonstrated from the region of the pancreas and the liver to show the carcinoma of the acini of the pancreas.

Comment. Primary carcinoma of the pancreas is not uncommon and most authorities believe that the most common location for carcinoma of the pancreas is in the head of the pancreas. However, there are exceptions to this opinion, and in one of the large hospitals in Chicago, one of the pathologists reported that in primary carcinoma of the pancreas 60% occur in the tail of the pancreas.

As to the histological picture of carcinoma of the pancreas there is, 1) a cylindrical cell type or the adenocarcinoma which originates from the ducts, and then, there is 2) the type that involves the island of Langerhans and this is associated with a marked hypoglycemia, and 3) carcinoma simplex which originates from the parenchyma of the pancreas. This latter type is a rapidly growing diffuse carcinoma. It is as a rule firm, but at times might be soft in consistency and on histological examination the cells resemble the pancreatic alveoli and these are large, granular and hydropic, and sometimes might show fatty changes.

AUTOMATIC DIAGNOSIS

1. Carcinoma of the head of the pancreas with multiple metastases to the liver, abdominal lymph nodes, right adrenal gland, gall bladder, pleura and pericardium.
2. Acute bacterial endocarditis.
3. Massive collapse of the left lung.
4. Dense fibrinous pleural adhesions, bilateral.
5. Hydrothorax, left.
6. Multiple ancient infarcts of the kidney.
7. Infarction of the spleen.
8. Accessory spleen.
9. Jaundice.
10. Emaciation.

DISCUSSION

Dr. Warren H. Cole: This represented a very difficult case diagnostically. In the first place, his history was very suggestive of perforated ulcer and we were never certain of the diagnosis until we made our exploratory incision. As you know, he had fever,

pain and leukocytosis, all of which were consistent with some chronic infection. He had a history of a sudden onset of pain which made him collapse. We, therefore, were led to think of a perforation of a duodenal ulcer followed by a subdiaphragmatic abscess. When he came in he had evidence of fluid in his left pleural cavity, which fits in well with a subdiaphragmatic abscess. We tapped him and got some serous fluid which did not give us much help diagnostically. He had a large mass in the upper abdomen which was palpable. As Dr. Levinson said, he likewise had an elevated serum amylase. That finding, in reality, made the diagnosis but we did not listen to it. We know that he could not have an elevated blood amylase without an obstruction to the pancreatic ducts. We also know that carcinoma of the pancreas will produce a high blood amylase in over fifty per cent of the cases; so will pancreatic cysts. Acute pancreatitis produces a rise more consistently but it occurs early and lasts only two or three days. We were confronted with the possibility of infection. Because he had a history of diarrhea we gave him a course of emetin, but in the absence of favorable effect we thought we had ruled out amoebic abscess of the liver.

Realizing the possibility of carcinoma and subdiaphragmatic abscess we thought we could not do any harm by making a small incision under local anesthesia. That showed large liver with implants of carcinoma; a positive diagnosis was then obtained. The lesson it taught us was to pay more respect to an elevated blood amylase.

NEUROBLASTOMA OF THE ADRENAL GLAND WITH METASTASES.

ABSTRACT OF HISTORY

Past History. This 22 month old white male infant was admitted to the hospital with the following history. The child was perfectly well until the age of 18 months at which time he fell and three days later developed a protrusion of the right eye and pain in this region. The protrusion returned to normal over a period of a month when the patient fell again three weeks before admission. Three to four days following this second fall the child developed a proptosis and ecchymoses of both eyes. The child had a fever for several days before admission and complained of pain in the eyes, but there was no vomiting or neurological signs. Since the time of the first fall patient had walked poorly and stumbled frequently and had difficulty in seeing. The past history was essentially negative.

Physical examination. On entrance revealed a well developed male infant 22 months of age with a marked bilateral proptosis and periorbital

ecchymotic discoloration. The head seemed enlarged in proportion to the age of the child. B.P. 108/68. The remainder of the physical examination was essentially negative.

Laboratory findings. Blood — R.B.C. 3.75; hemoglobin 9.5 gm.; urine negative. Wassermann and Kahn tests negative. Spinal fluid pressure 340 mm. Spinal fluid was slightly xanthochromic. Blood culture was negative. X-ray of the skull showed an increased density involving the anterior part of the skull and bones about the right orbit and posteriorly behind the vertex. X-rays of the abdomen, chest and long bones were negative.

Clinical Impression. An intracranial neoplasm, probably a hemangioma, and a metastatic neuroblastoma was considered.

Hospital Course. The child continued to run an elevated temperature and was somewhat somnolent. He cried at intervals, especially when being fed. He was given x-ray therapy to the skull after which there was some improvement in child's mental condition. However the proptosis increased and there was increased difficulty in feeding. Course was gradually downhill and child expired 11½ months after admission.

NECROPSY FINDINGS

The veins on the forehead were prominent and the head was enlarged in proportion to the body and there was a separation of the suture lines which could easily be palpated. There was a marked proptosis of both eyes with a subcutaneous ecchymoses around both orbits. The orbits protruded for approximately 7 mm. anterior to their normal position. The testicles were undescended and could be palpated in the inguinal canals. On the anterior surface of the sternum there were two nodular dark red areas which measured 8 mm. in diameter.

Abdomen. The peritoneal surfaces were smooth and glistening and the urinary bladder was distended for 5 cm. above the symphysis pubis. The abdominal lymph nodes were enlarged, particularly the peripancreatic group and the peribiliary group. These nodes were soft in consistency and pink red in color.

Heart weighed 90 gm. and grossly did not show any remarkable changes.

Lungs were grossly normal.

Liver weighed 650 gm. It was normal in consistency and brownish red to yellow in color. There were two subcapsular nodules on the superior surface of the right lobe of the liver which measured 5 mm. in diameter and appeared to extend into the parenchyma for a distance of about 5 mm. On section the lobular markings were somewhat indistinct although there were several light pink red areas of tumor tissue which had infiltrated the liver parenchyma along the larger blood vessels. The gall bladder and its duets were grossly normal.

Spleen weighed 70 gm., the *pancreas* weighed 45 gm. and the *thyroid* 5 gm. and showed no gross abnormal changes.

Adrenals. The right adrenal weighed 8 gm. and did not show any gross pathologic changes. The left adrenal gland had been replaced by a large globular tumor mass which was encapsulated and measured 5.5 cm. in diameter. Externally the tumor had a light gray blue lobular surface and could easily be separated from the superior pole of the left kidney. The tumor was moderately firm in consistency and the surface made by cutting showed that it bulged considerably from the capsular margin and was of a bright purplish red color with small scattered hemorrhagic areas of a darker purple color. Grossly one could not demonstrate any normal adrenal tissue.

Kidneys. The left kidney weighed 60 gm. and the right 40 gm. and grossly were unchanged.

G. I. Tract was normal.

Head. There was a marked thickening and erosion of the diploic portion, and the inner table of the frontal bone in the region of the calvarium was obviously invaded by tumor tissue and presented a purplish red trabeculated appearance. There was a marked variation in the thickness of the skull in the frontal area which measured 2 cm. in thickness while the parietal region was of almost paper-like thinness. On the inner surface of the frontal and temporal bones the dura was irregularly elevated by numerous nodular elevations of tumor tissue, measuring from 5-20 mm. which bulged upon the meningeal surface. The nodules were soft in consistency and had a pinkish gray to yellowish gray appearance while the underlying dura was of a glistening light bluish gray color. The

longitudinal sinus was entirely thrombosed and invaded by tumor tissue. The occipital and lateral sinuses also contained small thrombi. In the region of the sphenoid bone and internal occipital protuberances the dura was elevated from the base of the skull by large fungating dark red masses of tumor which produced an irregular erosion of the underlying bone. The base of the skull was diffusely infiltrated by tumor tissue about the orbits, ethmoid and sphenoid bones, causing compression of the structures in this region.

Brain weighed 1060 gm. The consistency was greatly diminished. The leptomeninges at the base of the brain about the chiasm were thickened and whitish. The frontal and anterior portions of the parietal lobes were irregularly depressed and the leptomeninges over the superior aspect in this area were diffusely discolored yellowish brown.

Histological section was demonstrated from the tumor of the left adrenal gland, as well as through the frontal cortex of the brain. The leptomeninx was infiltrated by a thin layer of abnormal cells. In the central portion of the dura there was evidence of calcification and in the region of the leptomeninx there were cells with dark nuclei and some showing mitotic figures.

Comment. Tumors of the adrenal gland may involve the cortex or the medulla. In this case the histological picture as well as the gross findings are of a neurocytoma and this tumor may simulate the histology of tumors arising in the sympathetic ganglia. Some observers attempted to separate the neurocytomas into two groups. 1) The Hutchinson's type which metastasize to the cranium and is associated with trauma, ecchymoses of the eyelids and proptosis, and 2) The Pepper's type which metastasizes to the liver, as a rule. The separation of this type of tumor into these groups may be satisfactory for teaching purposes, however, as you know, one cannot be too dogmatic in the distribution of tumors in the body. They do not necessarily follow a definite pattern. Although in this case presented it does simulate in many respects the Hutchinson's type of a neurocytoma, there is also evidence of the Pepper type because we have found tumor metastases in the liver.

ANATOMICAL DIAGNOSIS

1. Neuroblastoma, left adrenal gland with metastasis to the abdominal and peripancreatic lymph nodes, skull, dura, liver, pancreas, sternum and lung.
2. Fatty degeneration and congestion of the liver.
3. Marked proptosis, bilateral.
4. Ecchymoses of the periorbital tissues.

DISCUSSION

Dr. Warren H. Cole: This was a typical case of neuroblastoma of the adrenal gland. It is a beautiful textbook picture. We should be able to make the diagnosis more accurately. The only reason we do not is that the disease is uncommon. It is a disease of the sympathetic system, — a tumor of the sympathetic system just as ganglioneuromas and paragangliomas are. This tumor can be confused with pheochromocytomas which are tumors of the chromaffin system in the medulla. Patients with pheochromocytomas have intermittent hypertension which is quite dramatic diagnostically. True, it is a tumor of the medullar just as other nervous system tumors are. They are more amenable to surgery but are not so malignant. Tumors of the adrenal cortex are still different. The ones that are most interesting to us surgically are the adenomas which produce changes in sex characteristics and likewise are very amenable to surgery.

BUT THE PUBLIC LIKE 'EM

Margaret Widdemer, the poetess, contributes to *The Saturday Review* the following rather caustic comments on "A Recent Form of Literature."

There ought to be a Bull or Proctor
To check these books about a Doctor.

Doctors Galahad, Bradley, Roger,
The Doctor's Date, the Doctor's Lodger,
The Doctor's Villa, Buggy, Jungles,
(Oddly, never The Doctor Bungles)
The Doctor's Odysseys, Citadels;
The Doctor Silent; The Doctor Tells;
The Doctor Remembers; The Doctor Forgets;
The Doctor's Dog and his other pets;
The Doctor's Son, The Doctor's Wife;
The Doctor Looks at Love and Life.

(They're all as noble as can be;
Not one of them would split a fee
Or yank a passing tonsil out
Upon a merry sporting doubt
Or leave retractors in your tummy
Through lightheart haste to bridge or rummy.)

They're charming books — yes, that's quite clear —
But, Doctor, I've been sold the idea.
The one called "Doctor Here's Your Hat" —
Couldn't we leave the thing at that?

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

RUSH MEDICAL COLLEGE MERGED WITH UNIVERSITY OF ILLINOIS

On July 3, Rush Medical College and the Presbyterian Hospital of Chicago became a part of the University of Illinois College of Medicine. Rush Medical College will have its name preserved as a Division of the University of Illinois College of Medicine, and the merger will make the U. of I. medical department one of the strongest in the United States.

NEW MEDICAL CENTER ON CHICAGO'S WEST SIDE

Early in June, the bill proposing to aid in the developing of a new medical center on Chicago's West Side, was passed by the state legislature and as it was signed by Governor Green the law is now operative. A Medical Center Authority was created to develop a medical center, and which will be permitted to erect new buildings and create park facilities. This law should aid materially in increasing Chicago's claim to the medical center of the United States.

DOCTORS INVITED TO NINTH DISTRICT POST-GRADUATE CONFERENCE

MT. VERNON, SEPTEMBER 4

All doctors of Southern Illinois have been invited to attend the first Post-Graduate Conference sponsored by the Ninth Councilor District at Mount Vernon, Thursday, September 4th.

Doctor Andy Hall, Councilor, and those responsible for the program announce that plans have been made to carry out the following conference:

12:00 Noon — Buffet Luncheon — Hotel
Emmerson (Compliments of Jefferson-
Hamilton County Medical Society)

1:30 P. M. — "Diagnosis and Treatment
of Neurotics"

2:30 P. M. — "Enterocolitis of Infants and
Children"

3:30 P. M. — "Common Skin Diseases"

4:30 P. M. — "Treatment of Fractures"

6:30 P. M. — Dinner at Emmerson Hotel

7:30 P. M. — "The Acute"

Speakers from Chicago and St. Louis are being secured to present the program.

The July issue of the Mississippi Valley Medical Journal was designated as the "ALL CHICAGO" number, as all of the papers appearing in the number were presented at the last annual meeting of the Mississippi Valley Medical Society held in Rock Island. The Chicago papers were presented by Doctors Cleveland J. White, Italo F. Volini, Maurice L. Blatt, Leon Unger, Walter L. Palmer, Herbert E. Schmitz, Manuel E. Lichtenstein and Robert E. Lee.

At the annual meeting of the Chicago Society of Internal Medicine held May 26, the following officers were elected:

President: Andrew C. Ivy

Vice-President: Harold C. Lueth

Secretary-Treasurer: Richard B. Capps

At the Annual Meeting of the Chicago Gynecological Society held June 20, the following officers were elected:

President: Charles E. Galloway

President-Elect: Edward Allen

Vice-President: William J. Dieckmann

Treasurer: Ralph A. Reis

Secretary: James A. Gough

Pathologist: Herbert E. Schmitz

Editor: Garwood C. Richardson

At the annual meeting of the Sangamon County Medical Society held on June 5th the following officers were elected:

President: B. W. Hole

Vice-President: James Graham

Secretary-Treasurer: Nelson Chesnut

The following doctors attended the summer course in Obstetrics and Pediatrics offered at the University of Illinois College of Medicine during the weeks of July 7th and July 14th, and June 23rd:

B. A. Richardson — Emington

Jenkins Hightower — Chicago

Paul Immerwahr — Downers Grove

L. Lazarczyk — Chicago

D. L. Dickerson — Danville

E. E. Davis — Avon

W. F. Stenelle — Shawneetown

Paul Ashley — Chicago Heights

J. J. Klein — Harrisburg

Dick Frericks — LaGrange

S. C. Kaim — Rock Island

G. F. Edwards — Pinckneyville

C. J. Foley — Waukegan

Frank Gatti — Centralia

B. Q. Dysart — Henry

William Schuette — Mason City

E. D. West — Moline

P. E. Reid — Sparta

W. L. Whitten — Indiana, Pa.

F. D. Newmark — Chester

C. E. Eisele — East St. Louis

M. J. Haughton — Greenup

L. D. McMillan — Xenia

Hugo Long — Chicago Heights

John Patt — Chicago

Reno Ahlvin — Kankakee

Royal C. McLean — Kirkwood, Mo.

MARRIAGES

MICHAEL BOLEY to Mrs. Marcella Shannon, both of Chicago, June 4.

GEORGE AUGUSTINE GODER, Chicago, to Miss Elizabeth Mitchell Flynn of Arlington Heights, Ill., June 28.

DR. RALPH P. PEAIRS and Miss Nina B. Crigler announce their marriage on July 24th at Denver, Colorado. At home after September 1st at 302 North Castle Street, Normal, Illinois.

Deaths

HARRY AMANT, Springfield, Illinois; McGill University Faculty of Medicine 1910, Quebec; aged 61; died, June 27.

GEORGE L. BROOKS, Chicago; Hahnemann Medical College; aged 63; died, July 2.

JOSIE C. KENNEDY DIEDERICH, Rochelle; University of Illinois College of Medicine, 1901; died June 7.

JOHN R. NEAL, Chicago; Northwestern University Medical School, 1909; aged 61; died July 1.

HOWARD RUSSELL SWORD, Milledgeville, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; formerly member of the board of health; aged 60; died, May 21, of cerebral hemorrhage.

FRED CLARK TAYLOR, Peru; Indiana State Medical College, 1894; aged 68; died June 29.

T. E. WALTON, Danville; Kentucky School of Medicine, 1889; aged 80; died May 29.

ROBERT ALEXANDER HANNA, Peoria; Keokuk Medical College, 1894; aged 73; died July 15. Doctor Hanna was founder and head of the Hanna Clinic. For 43 years he was a member of the staff of Proctor Hospital and an honorary member of the staffs of St. Francis and Methodist Hospitals. He was at one time President of the Peoria City Medical Society. A deep student devoted to the arts of his profession, and a prodigious reader, Dr. Hanna possessed a broad liberal culture as well as an appreciation of humor and an original philosophy that won for him countless warm friendships in every walk of life.

JOSEPH HANNIBAL HOWARD, Chicago; Meharry Medical College, Nashville, Tenn., 1904; on the staff of the Provident Hospital; aged 62; died, May 12, of cerebral hemorrhage.

ALICE FLORENCE PIPER RUD, Chicago; Woman's Medical College, Chicago, 1889; aged 76; died, May 23, of myocarditis and nephritis.

WALTER WILE HAMBURGER, Chicago; Rush Medical College, Chicago, 1906; clinical professor of medicine, University of Chicago, The School of Medicine; formerly assistant clinical professor of medicine at his alma mater; member of the Central Society for Clinical Research, Association of American Physicians and the American Society for Clinical Investigation; formerly member of the board of directors and treasurer of the American Heart Association; member of the executive committee of the board of governors of the Institute of Medicine of Chicago; served as a major during the World War; at one time on the staff of the Cook County Hospital; for many years senior attending physician on the staff of the Michael Reese Hospital; aged 59; died, June 27, in Lake Lure, N. C., of coronary thrombosis.

JAMES J. WALSH, Danville, Ill.; Loyola University School of Medicine, Chicago, 1917; on the staff of the Veterans Administration Facility; aged 54; died, May 8, in the Veterans Administration Facility, Hines, of carcinoma of the urinary bladder.

WILLIAM HENRY WILSON, Joliet, Ill.; Hahnemann Medical College and Hospital, Chicago, 1898; fellow

of the American College of Physicians; member of the American Society of Clinical Pathologists; for many years on the staff of the Silver Cross Hospital; aged 74; died, May 15, of cerebral thrombosis.

OTIS M. TURNER, Sumner, Ill.; Eclectic Medical Institute, Cincinnati, 1898; at one time mayor; aged 72; died April 28, in Anna (Ill.) State Hospital of arteriosclerosis.

JAMES STEFFENS, Chicago; American College of Medicine and Surgery, Chicago, 1905; aged 65; died, May 11, in the Veterans Administration Facility, Hines, Ill.

EUGENE H. BURRIDGE, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1877; aged 85; died, May 13, of cerebral hemorrhage.

THOMAS CLINTON SERIGHT, Chatsworth, Ill.; Jefferson Medical College of Philadelphia, 1889; aged 79; died, April 29.

HENRY PERKINS FITZPATRICK, Chicago; Rush Medical College, Chicago, 1896; aged 73; died, May 14, of organic heart disease.

JAMES W. MACDONALD, Aurora, Ill.; Northwestern University Medical School, Chicago, 1892; member of the Western Surgical Association; formerly chairman of the city board of health and health commissioner; aged 74; on the staffs of St. Charles Hospital and St. Joseph Mercy Hospital, where he died, May 21, of hypostatic pneumonia and chronic myocarditis.

JOSEPH MICHAEL O'MALLEY, Ohio, Ill.; St. Louis University School of Medicine, 1907; member of the Illinois State Medical Society; president of the board of education; aged 65; died, May 23, when the automobile in which he was driving was struck by a truck.

JESSE BRENTON COPPENS, Chicago; Loyola University School of Medicine, Chicago, 1917; on the staff of the Martha Washington Hospital; aged 58; died, May 26, of chronic myocarditis.

ORA RICHARD SAUL, Dana, Ill.; Chicago College of Medicine and Surgery, 1914; member of the Illinois State Medical Society; served during the World War; aged 50; died, May 29, of injuries received in an automobile accident.

ORA L. PELTON, Elgin, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1872; Bellevue Hospital Medical College, New York, 1874; fellow of the American College of Surgeons; surgeon, St. Joseph's and Sherman hospitals; aged 89; died, May 26, of uremia and nephritis.

LADDIE WALTER ZEMAN, Hinsdale, Ill.; University of Illinois College of Medicine, Chicago, 1940; first lieutenant in the medical reserve corps of the United States Army; aged 27; was drowned, June 13, in a lagoon at San Juan, Puerto Rico, when the boat he was sailing capsized.

FRANK S. GRAY, Allendale, Ill.; Medical College of Ohio, Cincinnati, 1883; aged 86; died, May 26, of myocarditis and arteriosclerosis.

JOEL C. FREEMON, Argenta, Ill.; Hahnemann Medical College and Hospital, Chicago, 1903; aged 60; died, May 27, of heart disease.

JOHN ANGIER MACGREGOR, West Frankfort, Ill.; Barnes Medical College, St. Louis, 1898; aged 67;

died, May 14, in Chicago.

VIRGINIA DINSMORE, Griggsville, Ill.; Woman's Medical College, Chicago, 1889; aged 87; died, May 26, in Pittsfield, of acute dilatation of the heart.

JOSEPH E. WHARTON, Peoria, Ill.; Drake University Medical Department, Des Moines, Iowa, 1898; aged 67; died, May 10, of coronary thrombosis.

EMMA J. WARREN, Chicago; Northwestern University Woman's Medical School, Chicago, 1893; aged 77; died, May 21.

OTITIS MEDIA

1. Those treating acute otitis media should be familiar with the anatomy of the temporal bone and the symptoms and physical signs of otitic infection.

2. The anatomy of the eustachian tube in infants and young children lends itself to the spread of infection from the nasopharynx to the tympanic cavity.

3. With the first symptom of otitis media the patient should be put at rest and proper treatment instituted.

4. Myringotomy should be performed when the inflammation in the tympanic cavity shows no tendency to undergo resolution.

5. Repeated incisions of the tympanic cavity are rarely indicated provided the first incision is adequate.

6. When sulfanilamide is used, the patient should be under close observation.

7. A mastoidectomy is indicated when the discharge has continued into the second or third week with clinical or roentgen-ray evidence of bone destruction of the mastoid.—*Penn. Med. Jo.*

Since the January-February issue, The Journal of Infectious Diseases has been published by the University of Chicago Press under the editorship of a newly appointed Board of Editors, with William H. Taliaferro, Chairman of the Department of Bacteriology and Parasitology, the University of Chicago, Editor-in-Chief. The Journal is published bi-monthly. It was established in 1904 by the John Rockefeller McCormick Memorial Institute for Infectious Diseases.

Dr. Ludvig Hektoen, editor of the Journal since its founding in 1904, has retired from active participation. Under Dr. Hektoen's editorship, the Journal attained world-wide distinction with subscribers in 49 foreign countries.

Dr. Francis B. Gordon, Assistant Professor of Bacteriology, University of Chicago, who has been on the editorial board for some time, now becomes Managing Editor.

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Book Reviews

INFANTILE PARALYSIS. Philip Lewin, M.D., F.A.C.S. With foreword by Ludwig Hektoen, M.D., and Morris Fishbein, M.D. 1941 — W. B. Saunders Company, Philadelphia.

This fine book is intended to give information concerning anterior poliomyelitis to the general physician, the pediatrician, and orthopaedic surgeon. It discusses in detail the etiology, diagnosis, and treatment of this disease, stressing the importance of early diagnosis and early institution of proper treatment. The work will likewise appeal to the student who has much difficulty in getting adequate information on this dreaded disease in his routine studies.

Special emphasis is given the prevention of the disease, methods of diagnosing it in the preparalytic stage, the desired early treatment, relief of pain, prevention of deformities, and the conservation of muscle power. The outlook for saving life and preserving essential functions are also considered in detail.

Recent advances in the surgical treatment of deformities and impairments of muscle function are likewise considered with special emphasis on the rehabilitation program so often essential to the future well being of the poliomyelitis patient.

THE MEDICAL CLINICS OF NORTH AMERICA. May, 1941. New York Number. W. B. Saunders Company, Philadelphia.

The New York number of the ever popular Medical Clinics of North America is full of information for the busy physician desiring to refresh his memory on the many subjects therein contained. As usual there is a wide coverage of various subjects with information on newer developments in hormone therapy, vitamins, problems in puerperal sepsis, radiation therapy, advances in physical therapy, and discussions of venereal disease. Other equally important subjects will be found in this interesting volume.

PLAY FOR CONVALESCENT CHILDREN IN HOSPITALS AND AT HOME. Anne Marie Smith. A. S. Barnes & Company, New York. \$1.60, 1941.

The author has had many years of experience as

organizer and instructor in play and recreation in hospitals, while at the Children's Memorial Hospital in Chicago. She has also devoted a considerable amount of time to developing play institutes in several other places, including military hospitals at Camp Custer, Michigan, during the first World War.

The author attempts in this book to show the importance of organized play and recreation programs as an important part of the care of convalescent children, featuring particularly play activities requiring no material equipment.

A TEXTBOOK OF OPHTHALMOLOGY. Sanford R. Gifford, M.D., professor of Ophthalmology, Northwestern University Medical School, Chicago. Second edition, revised. 470 pages; 255 illustrations. W. B. Saunders Company, Philadelphia. \$4.00, 1941.

Although this has been announced as a textbook on ophthalmology, it is written so that it will be of great interest to the physician in general practice who sees most of the prevailing eye troubles first. The book is well illustrated, well arranged and the second edition has been completely revised.

CARDIAC CLASSICS. Frederick A. Willius and Thomas E. Keys. C. V. Mosby Company, St. Louis. \$10.00, 1941.

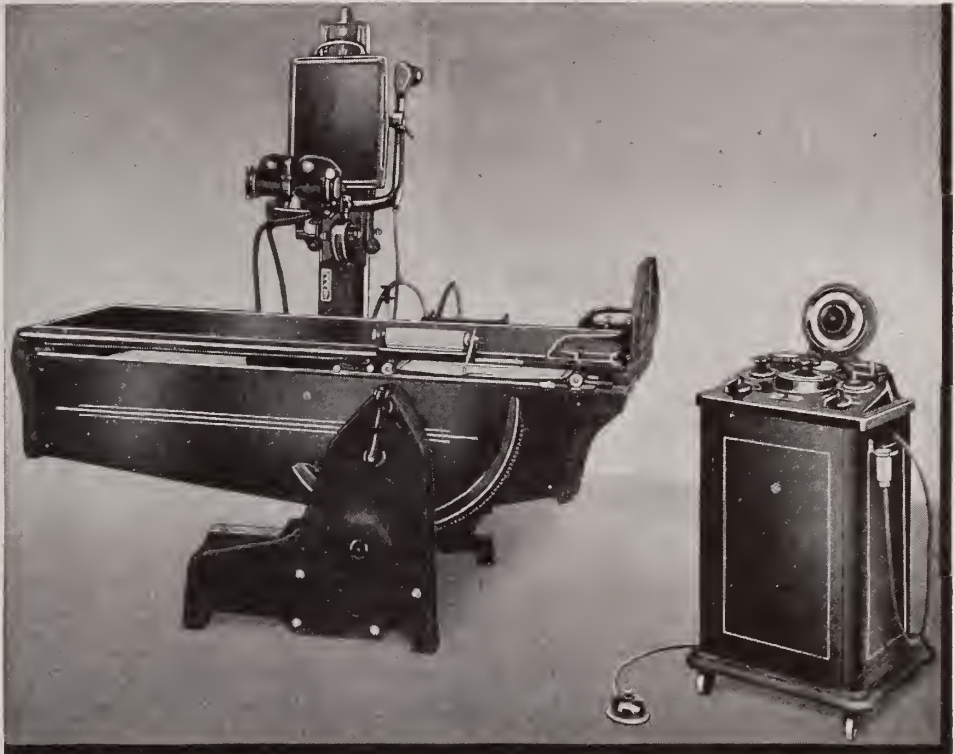
This is a most unique book of interest to the specialist as well as the general practitioner. It is a fine contribution to the ever increasing number of works on the history of medicine. The various steps in the development of modern cardiology from the discovery of circulation by Harvey to the article by Herrick describing coronary occlusion.

It is easy to read, and its fascination increases as one goes through the 858 pages. Cardiac Classics, in the opinion of the reviewer, should be in the library of every physician.

TEXTBOOK OF PEDIATRICS. J. P. Crozier Griffith, M.D., Ph.D., and A. Graeme Mitchell, M.D. 991 pages; 220 illustrations. W. B.

(Continued on page 24)

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Saunders Company, Philadelphia. \$10.00. 1941.

In this third edition you will find that this work is entirely revised and rewritten. The title has been changed from "Diseases of Infants and Children" as the old title did not seem appropriate for the present book. Assistance was given in the preparation of this book by a collaborating staff of sixty-four prominent specialists so that the final effort is not merely the opinion of two men.

The 1941 textbook contains much information for the specialist or general practitioner who cares for children. In this one compact volume is found as much material as is usually contained in two or more volumes. The book should be highly recommended as an outstanding work in this specialty and one which should give physicians having it available, such information as may be desired from a complete textbook.

PHYSICAL MEDICINE. Frank H. Krusen, M.D. W. B. Saunders Company, Philadelphia. \$10.00. 1941.

This is an exceptionally fine one volume work on physical therapy written by a man thoroughly familiar with the subject. This book should be of interest to the physician devoting considerable time to this special branch of medicine, as well as to the man who uses principally homemade appliances in administering certain treatments along the line of physical therapy.

The subjects are well arranged making it an ideal book for quick reference on any subject therein contained. There is, likewise, a wide range of subjects and the book gives information concerning physical therapy applications in many of the more common ailments such as sprains, fractures, arthritis, pulmonary infections, and other difficulties found frequently in the practice of most physicians.

The book should be of much value to the physician who has only recently become interested in physical therapy, whether this interest be in heat, light, electrotherapy, or some of the more complicated methods in this present day field.

Books Received

The following books have been received for reviewing, and are herewith acknowledged. This listing should be considered as a sufficient return for the courtesy of the sender. Books that appear to be of unusual interest will be reviewed as space permits each month. Readers desiring additional information relative to books listed, may write the Editor who will gladly furnish same promptly.

A PRIMER FOR DIABETIC PATIENTS; Russell M. Wilder, M.D. 7th edition; 1941. W. B. Saunders Company, Philadelphia; price \$1.75.

THE MEDICAL CLINICS OF NORTH AMERICA; May, 1941; New York Number. W. B. Saunders Company, Philadelphia.

PHYSICAL MEDICINE; Frank H. Krusen, M.D., F.A.C.P. W. B. Saunders Company, Philadelphia; 1941. 846 pages — 351 illustrations; price \$10.00.

MODERN DRUGS IN GENERAL PRACTICE; Ethel Browning, M.D. A William Woods Book; The Williams & Wilkins Company, Baltimore. 1940 — price \$3.00.

FIRST AID IN EMERGENCIES; Eldridge L. Eliason, M.D. 10th edition — 1941. J. B. Lippincott Company, Philadelphia. 260 pages; 126 illustrations. Price \$1.75.

THE AVITAMINOSES; Walter H. Eddy, Ph.D., and Gilbert Dalldorf, M.D. Second edition; 1941. The Williams & Wilkins Company, Baltimore. Price \$4.50.

CARDIAC CLASSICS; Frederick A. Willius, M.D. and Thomas E. Keys, A.B., M.A. 846 pages; 103 illustrations. The C. V. Mosby Company, St. Louis; 1941. PRICE \$10.00.

TEXTBOOK OF MEDICINE; J. J. Conybeare, M.C., D.M. Oxon., F.R.C.P., London. A William Woods Book; The Williams & Wilkins Company, Baltimore; 1940. 1131 pages, 24 illustrations with 31 X-ray plates. Price \$7.50.

THE MASK OF SANITY; AN ATTEMPT TO REINTERPRET THE SO-CALLED PSYCHOPATHIC PERSONALITY. Hervey Cleckley, B.A., M.D. 298 pages; 1941. The C. V. Mosby Company, St. Louis. Price \$3.00.

THE ESSENTIALS OF APPLIED MEDICAL LABORATORY TECHNIC; DETAILS OF HOW TO BUILD AND CONDUCT AN OFFICE OR SMALL HOSPITAL LABORATORY AT SMALL COST; J. M. Feder, M.D. Blood and Plasma Transfusion. John Elliott Sc., D. 241 pages; 83 illustrations. Charlotte (N. C.) Medical Press; 1940. Price \$5.00.

PROCTOLOGY FOR THE GENERAL PRACTITIONER. Frederick C. Smith, M.D., M. Sc., F.A.P.S. Second Revised Edition; 1941. F. A. Davis Company, Philadelphia. Price \$4.50.

TEXTBOOK OF PEDIATRICS. J. B. Crozier Griffith, M.D., Ph.D., and A. Graeme Mitchell, M.D. Third Edition; 1941. 922 pages; 220 illustrations. W. B. Saunders Company, Philadelphia. Price \$10.00.

ORAL PATHOLOGY. A Historical, Roentgenological and Clinical Study of the Diseases of the Teeth, Jaws and Mouth. Kurt H. Thoma, D.M.D. 1306 pages, illustrated. C. V. Mosby Company, St. Louis, 1941. Price \$15.00.

THE STORY OF CLINICAL PULMONARY TUBERCULOSIS. Lawrason Brown, M.D. The Williams & Wilkins Company, Baltimore. 1941. Price \$2.75.

PLAY FOR CONVALESCENT CHILDREN; IN HOSPITALS AND AT HOME. Anne Marie Smith. A. S. Barnes & Company, New York, 1941. Price \$1.60.

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"IRON LUNGS" ARE NOT LIVING UP TO EXPECTATIONS HELD FOR THEM

Journal Says A Recent Survey Indicates
Their Use For Infantile Paralysis
Often Has Been Disappointing

The mechanical or artificial respirator, sometimes called the "iron lung," is not measuring up to the high hopes originally held for its usefulness in saving lives or in the treatment of that type of infantile paralysis involving the muscles of breathing, *The Journal of the American Medical Association* for July 26 says in an editorial discussing the findings of a recent survey made for the National Foundation for Infantile Paralysis. *The Journal* says:

"At least six hundred and eighty mechanical respirators are available in the United States. An estimate of their value in poliomyelitis (infantile paralysis), subject to the limitations of the questionnaire method, was obtained by (J. L.) Wilson (M.D., Detroit) for the National Foundation for Infantile Paralysis. Replies to the questionnaire were received concerning four hundred and twenty of the respirators owned by three hundred and thirty-five hospitals, other institutions or individuals. The purposes of the survey were (1) to determine the total number of patients with poliomyelitis treated by means of respirators in the year 1940, (2) to determine to what use available respirators have been put, (3) to obtain

some idea of the use of the respirators for patients other than those with poliomyelitis and (4) to attempt to evaluate the accuracy of diagnosis and of judgment shown in selecting the right type of patient to be placed in a respirator.

"Of the three hundred and thirty-five returns, one hundred and thirty-two reported having had patients with poliomyelitis treated in respirators, with a total of 331 patients. Wilson believes that between 400 and 500 patients with poliomyelitis were treated in respirators in the United States during 1940. In addition to the 331 patients with poliomyelitis who were treated, 136 patients with other diseases were placed in respirators. Twenty-nine per cent of the victims of poliomyelitis were under 10 years of age, 41 per cent between 10 and 20 years of age and 30 per cent over 20 years. Only 52 per cent of patients with poliomyelitis were placed in respirators on the fourth day of the disease or earlier, whereas 25 per cent were put in the respirator on the seventh day of their disease or later. Apparently there is a surprisingly high incidence of respirator patients in the older age groups and a large percentage of patients not treated with respirators until comparatively late. Possibly a considerable number of these patients were neglected and should have had respirator treatment earlier.

"Of the total number of patients with poliomyelitis reported, over 60 per cent (204 patients) were stated to have the 'bulbar' form of the disease (involving

(Continued on page 28)



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the throat) or it was indicated that they had difficulty in swallowing. Many of these patients probably should not have been put in respirators, but this cannot be definitely stated because the bulbar symptoms, which cannot be helped by respirators, may have been associated with paralysis of the respiratory muscles, which can be so helped. Of the 204 patients stated to have the 'bulbar' form of the disease or indicated as having difficulty in swallowing, all but 17 were reported as having intercostal (muscles of the ribs involved in labored breathing) or intercostal and diaphragmatic paralysis. Patients who have trouble with swallowing often breathe irregularly and shallowly and act as if they have intercostal paralysis when actually they do not. Hence many of these cases were no doubt inaccurately diagnosed. Twelve patients were reported as having difficulty in swallowing but were not stated to have the 'bulbar' form of the disease; these were wrongly diagnosed. Twenty-eight were stated to have the 'bulbar' form without difficulty in swallowing being noted; all of these but 8 were recorded as having intercostal or diaphragmatic paralysis. The accuracy of these reports can likewise be justifiably doubted. A question was asked about the paralysis of the deltoid muscles (of the upper arms). Although it is well established that intercostal paralysis rarely occurs without associated paralysis of the deltoids or upper arms, 40 cases were recorded in which intercostal paralysis was reported without indication of deltoid paralysis. This number is more than would be expected and probably is inaccurate. The remaining 101 patients were indicated as having had paralysis of the intercostal muscles or the diaphragm but were not reported as having difficulty in swallowing or were not stated to have the 'bulbar' form of the disease. Thirty-three of these were indicated as having intercostal paralysis alone. Three cases of diaphragmatic paralysis were reported, but this cannot be challenged because, although this condition is rare, a few could be expected.

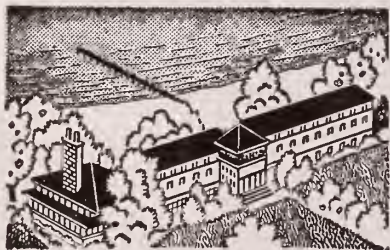
"The data obtained, while not conclusive, are suggestive. Of the 331 patients with poliomyelitis treated in respirators, 150, or 45 per cent, died. One hundred and twenty-seven of the 150 fatal cases were those reported as having the 'bulbar' form of the disease or

as having difficulty in swallowing. Of the 204 'bulbar' patients 127 died, a fatality rate of 67 per cent, while of the 127 nonbulbar patients 23 died, a fatality rate of 19 per cent. The high mortality in the 'bulbar' groups is to be expected. Many of the patients who died were in the machines only a short time and probably could not have been expected to be materially helped.

"There were reports of frequent lending of machines from one hospital to another; although commendable, it is evident that in some instances dependence on a borrowed machine must mean confusion and delay in instituting treatment.

"From this analysis, apparently the practical aspects of the use of respirators for the respiratory (breathing) paralysis of poliomyelitis is not always satisfactory. Patients with the 'bulbar' form of the disease are given respirator treatment in some instances in which such treatment cannot be expected to be of benefit. Diagnosis and judgment related to the employment of respirators should be much improved. Finally, the delay in initiation of respirator treatment appears to be, in many instances, much greater than could possibly be warranted. Although Wilson's report does not make the definite statement, it is clear that the use of respirators for poliomyelitis is often disappointing. Experience with this device certainly does not approach the high expectations for saving lives which were originally anticipated."

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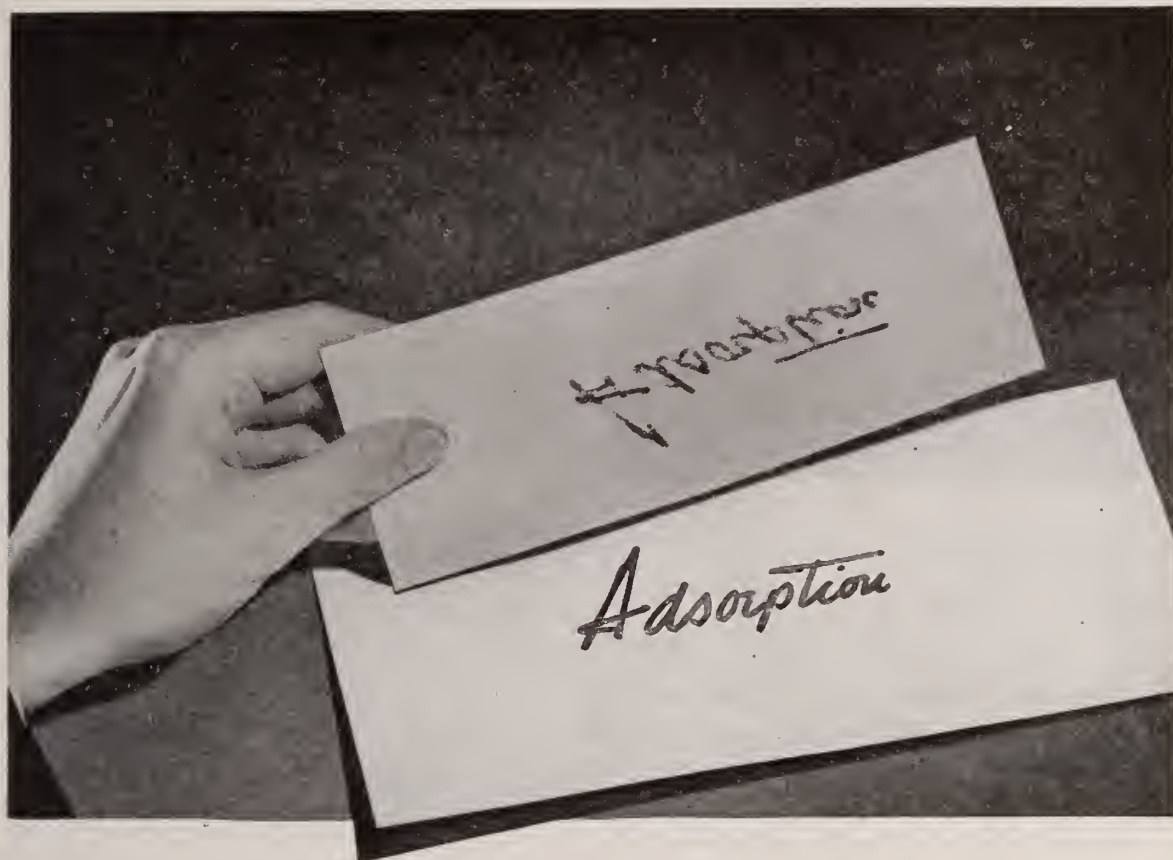
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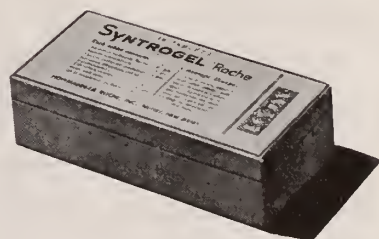
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PUBLIC BECOMING AWARE OF ADVANTAGES OF ETHICAL, PRESCRIBED REMEDIES

"Education is making the public aware of the advantage of using ethical remedies and prescribed remedies," *The Journal of the American Medical Association* for June 21 declares in commenting on the results of recent Federal legislation affecting prescriptions and "patent medicine" claims.

"When the new Federal Food, Drug and Cosmetic Act was enacted," *The Journal* says, "many doubted its effectiveness. Similar consideration was given to the Wheeler-Lea Amendment to the Federal Trade Commission Act, which became a law at about the same time. Now some figures have become available which seem to indicate clearly that such legislation is having a desirable effect. The *American Journal of Pharmacy* for January 1941 contains an item under the title 'The Nation Takes Its Medicine,' noting that prescription drugs and medicines showed an increase of \$36,000,000 for 1939 over 1937 and that 'patent' and proprietary medicines for public sale decreased \$18,000,000 in value in the same period. The actual value of the prescription medicines in 1939 was \$178,930,487. The value of 'over the counter' medicines in that year was \$166,577,263. Obviously, therefore, the permissible claims for 'patent medicines' today are so restricted as to reduce their sale to the public, or the public is becoming better informed as to the advantages of employing ethical remedies and prescribed remedies. The *Drug and Cosmetic Industry* for December 1940 provides an analysis in its story 'Ethicals Take Lead.' Apparently vitamins showed the greatest gain, glandular preparations also advanced, and the use of biologic preparations was adversely affected by the popularity of sulfanilamide in infectious conditions . . . If, by action of the various federal agencies, the sales of 'patent medicines' continue to decrease, a new day will dawn for the health of the American people. The health of the nation is an integral part of national defense."

The Canadian Medical Association has informed the British Medical Association that homes of physicians in several provinces are ready to receive more than 1,100 children of British physicians, according to an announcement in the *Canadian Medical Association Journal*.

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SPOILS SYSTEM AND PUBLIC HEALTH

"The argument over government socialized medicine necessarily produces considerable confusion in the public mind," observes the *Saranac Lake Enterprise*.

"The medical profession is not, as some seem to believe, stubbornly opposed to efforts of government to aid the sick and diseased. It heartily approves of such efforts when legitimate and sound.

"It supports government hospitals where private facilities are lacking — supports government medical aid of those afflicted with mental and nervous diseases — supports the long established, excellent work done by the public health service.

"Since 1874, surprising as it may seem, the American Medical Association has repeatedly urged the establishment of a Federal department of health with a secretary who shall be a doctor of medicine and a member of the President's cabinet. It has invariably offered whole-hearted cooperation in developing efficient and economical ways and means of expanding public health and maternal and child health services.

"What, then, does the medical profession — along with qualified laymen — oppose?

"It opposes political ventures in the medical field which would inevitably and rapidly reduce public health standards — and destroy or hamper essential work in the battle against disease.

"Political domination of the medical profession would mean that the doctor's political pull was more important than his abilities as a practitioner. It would mean that medicine would become a great new field for political patronage. Thus, it would mean unnecessary deaths, unnecessary suffering, unnecessary illness.

"A doctor's party label has no influence on his expertness at diagnosis and prognosis.

"But, under socialized medicine, the party label would come first. The 'spoils system' would invade the public health."

FEEDING EGG YOLK POWDER CAUSED GAIN IN WEIGHT OF 9 OUT OF 10 PATIENTS

The feeding of egg yolk powder caused 9 of 10 patients to gain weight, whereas previous high calory diets supplemented by vitamins had failed, Alfred Steiner, M.D., New York, reports in *The Journal of the American Medical Association* for June 21.

It is believed that some factor other than the caloric value of the egg yolk powder may play a part in the resultant increase in the nutrition of the body inasmuch as the calory intake of 5 of the patients was below and that of the other 5 but slightly above that of a control period when they failed to gain weight on a well balanced diet that did not contain the egg yolk powder.

"Egg yolk powder," the New York physician says, "is a rich source of vitamins A and D and the water-soluble fraction of the vitamin B complex. The cost of the egg yolk powder was 15.4 cents daily, or \$1.08 a week, for each patient.

"From the data presented it would appear of value to add egg yolk powder to the list of agents used in stimulating an increase in body weight in special instances."—*A. M. A. News*.

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JOURNAL WARNS AGAINST DRIVING WHEN TAKING SULFANILAMIDE

Says Stay At Home When Taking The Drug;
Tells Of The Impairment Of Engineer's
Judgment Which Caused Train Wreck

"Many therapeutically effective drugs influence the physiologic mechanisms, psychomotor (muscular coordination) reactions or judgment of persons who take them," *The Journal of the American Medical Association* for May 17 points out in a warning on the dangers of impaired judgment resulting from the taking of sulfanilamide and its derivatives. "When given to patients at rest in bed such drugs have been established as beneficial to the patient and of course harmless to other persons.

"Under some circumstances, however, drugs may have effects potentially dangerous to both patient and community. Not long ago a locomotive engineer who was taking sulfanilamide for an infection of the bladder was involved in an accident in which considerable property damage was done and a number of people were injured. He described the event as follows:

"Approaching the station where the accident occurred, a feeling of lassitude seems to have crept over me unawares and to the extent that I do not have much recollection of what went on for the last two or three miles. I was sitting on my seat, looking out and feeling that I was on the alert. . . . Actually I was not on the job with all my faculties. I passed landmarks customarily used to locate position without

seeing them, even to the station board; and it was only when the hazard became imminent that I was aroused out of it and became efficient.

"Already physicians have ruled that airplane pilots must not fly until four days have elapsed after they have received any of the sulfonamide group. Patients engaged in mechanical work of any kind should not take sulfanilamide except when relieved from their responsibilities. Physicians thus have a definite obligation when prescribing sulfanilamide.

"Patients should be cautioned preferably to stay at home and at rest while taking the drug and not to drive an automobile, make any important decision or sign any papers while the drug is being administered. Such recommendations seem especially advisable in view of the insidiously developing reactions of sulfanilamide when compared with such drugs as the bromides and the barbiturates."

POSTOPERATIVE SMOKING

More men suffer postoperative atelectases of the lungs than do women, although many more women are operated upon. Permitting these men to smoke just enough to provoke a cough reflex sufficient to promote evacuation of the accumulated mucus is a good idea. Perhaps we have been doing harm by forbidding postoperative smoking.—M. Viglione, M. D., in *Hahneman. Mon.*, Mar., 1941.

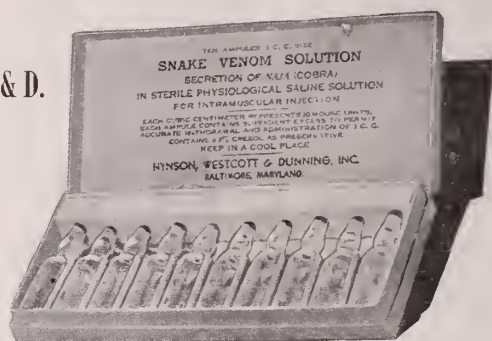
Cobra Venom Solution H. W. & D.

FOR three years Cobra Venom Solution, H. W. & D., has been used clinically for relief of intractable pain. During this period many thousands of doses have been administered with a measure of relief from pain reported in 50-70% of the cases treated.

Cobra Venom Solution, H. W. & D., is a purified, standardized, sterile preparation supplied in ampules for intramuscular injection. It has been rendered clinically acceptable by removal in large measure of the objectionable hemotoxic and proteolytic constituents of crude venom, the finished preparation being essentially a solution of cobra neurotoxin.

Indications: Reports indicate that Cobra Venom Solution, H. W. & D., is particularly helpful in relieving severe pain associated with malignant disease. It has also been used to relieve pain in certain forms of arthritis, herpes zoster, Parkinson's disease and other neurologic disorders. In some cases the solution alone is effective; in others it is necessary to use it in conjunction with an analgesic. Dosage of morphine and other drugs may be reduced in a majority of patients.

The solution does not produce the objectionable reactions of morphine, is not habit forming; the margin of safety is wider; patients do not develop tolerance. Dosage is usually reduced rather than increased after relief has been established. No serious untoward reactions or changes in the blood of vital organs have been reported, but the solution should be used under careful medical supervision.



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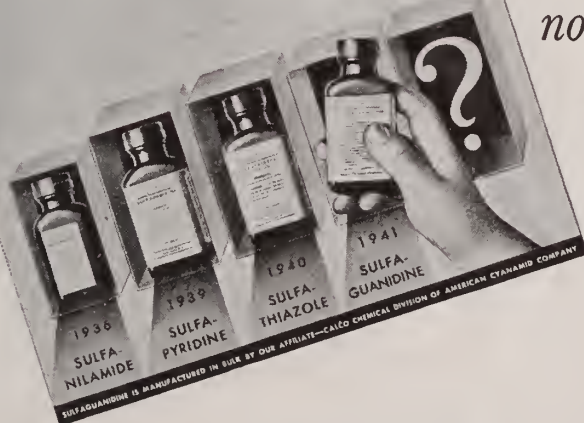
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REFERENCES:

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SEP 17 1941

Illinois Medical Journal

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Vol. 80, No. 3

SEPTEMBER, 1941

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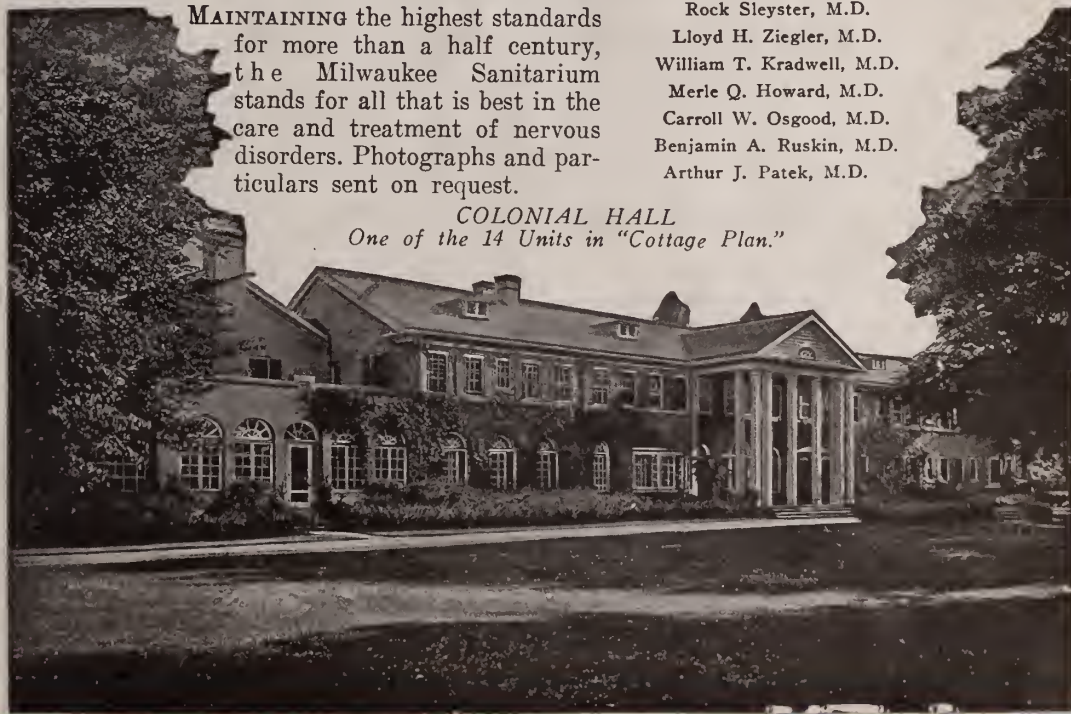
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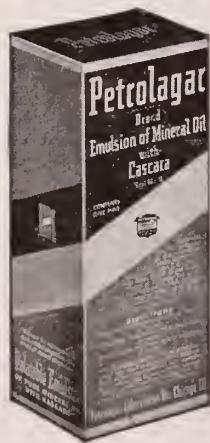
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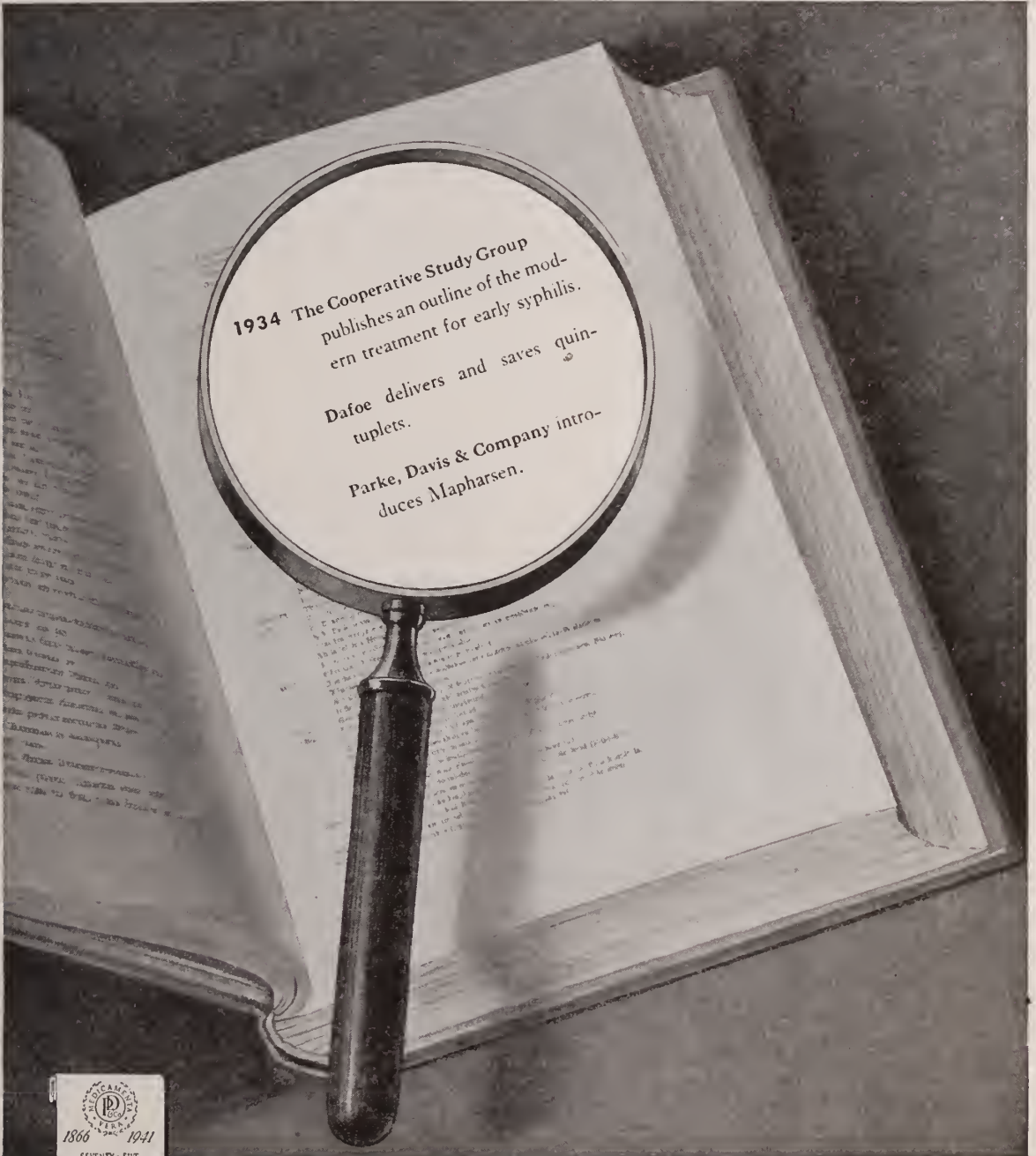
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(1)

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1934. Am. J. Pub. Health 24, 194.



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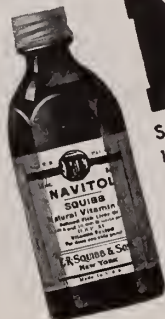
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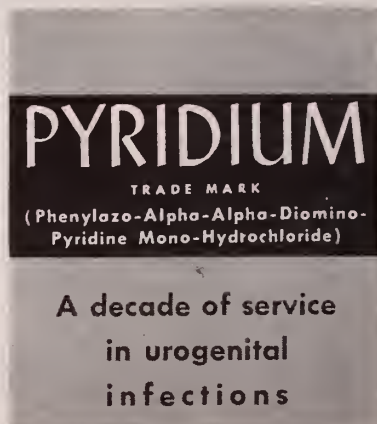
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Right—chronic inflammation.



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*An experimental study of the anesthetic and analgesic properties of pyridium, J. Urol. 44: 381-385, Sept. 1940.

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*J. M. Soc. New Jersey, 36, 442 (July) 1939.

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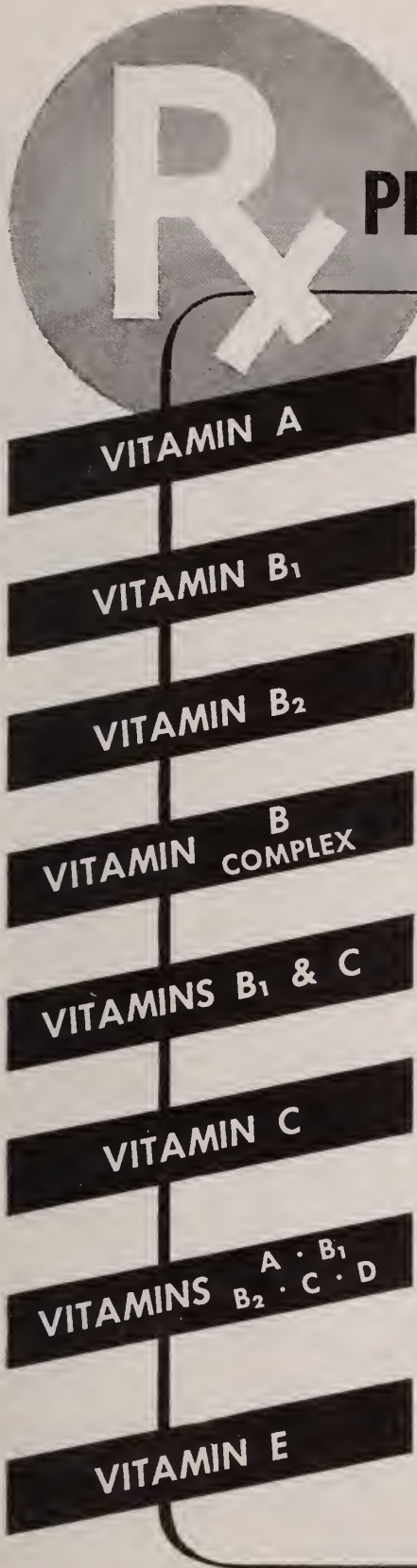
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The Illinois Medical Journal

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Editorials

INSTITUTION POPULATION

We are indebted to the Welfare Bulletin published by the State Department of Public Welfare for the following information.

Many citizens of Illinois no doubt know that the expense of caring for the wards of the state is one of the major expenses to the tax payers, but few of us actually realize the number of these wards who are in the many Illinois institutions.

On May 31, 1941 there were 56,693 persons in state institutions in Illinois. In the hospital group there were 31,828; in the feeble minded and epileptic group, 8,747; in the prison group, 12,102, and in other institutions, 4,016.

Admissions to the hospitals for the mentally ill, the feeble minded and epileptics for the month of May were 1,092; direct discharges were 365; paroles 654; deaths in the institutions, 290, and returned from parole, 176. The total number under treatment during the month was 40,755. Recipients of Old Age Assistance during May totalled 145,883.

We are informed that one out of six patients admitted to mental institutions in the United States is admitted to a private institution. For the year 1938 there were 153,124 patients admitted to mental hospitals, and of this number 24,936 or 16.3% were admitted to private hospitals.

The average general hospital is not equipped to give proper care to mental patients, so it is quite obvious that the private institutions are of great importance in the care program of the mentally ill. In the state of Illinois there are

15 private sanitariums caring for mental patients with approximately 500 capacity. It is interesting to note the difference in types of patients admitted to public and to private sanitariums. Ninety percent of those admitted to the public hospitals are psychotic, while only 71% of those in private hospitals have an actual psychosis. About 18% of the private hospital patients are alcoholics and 2% of them have general paresis contrasted with 9% in the public institutions.

It is also interesting to note that among the psychotics in the public hospitals, the largest group is that of the dementia praecox cases, while in the private hospitals those suffering from manic-depressive psychosis constitute the greater number. Relatives of unfortunate patients who have developed some mental illness, when able to do so, will naturally go to a considerable amount of expense to give their loved ones the best possible care. When able to afford the additional costs, they prefer to have them in a private sanitarium.

It is true that in private hospitals for the mentally ill, the attendants have fewer patients to care for and most likely are able to give a better personal service than in the larger institutions with thousands of patients and fewer physicians in proportion to their own number. On the other hand, our state hospitals for mental cases are well equipped, have physicians who by virtue of training and experience, are thoroughly able of giving all necessary attention, and those who are unable to pay for private sanitarium care, do get adequate attention.

PAPERS FOR PUBLICATION IN THE ILLINOIS MEDICAL JOURNAL

It is the desire of those responsible for the publication of The Illinois Medical Journal to secure many scientific papers for regular publication — preferably papers which will be of general interest to the average practitioner who reads his Journal. Efforts will be made each month to publish papers on various subjects so that, regardless of special inclinations in practice, the material will be of interest to all.

Much has been written in recent years relative to the length of papers. It is obvious to all that most papers submitted for publication are too long. Perhaps from 25% to 50% of the subject matter could be condensed or deleted without loss in value of the paper itself. Extensive bibliographies should be curtailed. We recall a paper published recently in a medical journal with 269 references in the bibliography. These lists could be published in reprints, but it should not be necessary to publish such extensive lists in connection with the paper.

The Committee on Publication of a large state medical society recently directed its Journal

personnel to discuss this subject editorially, giving as an additional excuse, the fact that the cost of paper and printing is mounting, and a considerable saving can be made if authors will pay more attention to a few simple facts concerning the length of papers.

The editorial staff of this Journal suggested "that in preparing a manuscript, each author set up in the left hand margin of the first page the five questions: who? what? when? where? why? If these questions are definitely answered in the first few paragraphs of the article in the order named, the entire subject matter will be presented to the reader in complete outline. It may then be expanded in subsequent paragraphs to the extent that the subject necessitates."

It is quite obvious to all who have had some experience in writing papers that these suggestions cannot always be carried out literally. However it is possible in many instances to follow these simple rules which will be appreciated greatly by the readers and those responsible for the publication of the paper.

It is the desire of those responsible for the publication of the Illinois Medical Journal to

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publish from twelve to fourteen scientific papers each month. This can be accomplished only with the cooperation of the authors, and their efforts to limit the length of papers, keeping in mind the essentials, and eliminating lengthy bibliographic references, and unnecessary repetition in subject matter.

FINAL REPORT OF THE LEGISLATIVE COMMITTEE ON THE REGULAR SESSION OF THE 62ND GENERAL ASSEMBLY

Crowded out of the headlines by war news, except briefly near the end of the session when members staged a filibuster in a last desperate effort to attract popular attention, the Sixty-Second General Assembly appeared throughout the session to have been doing very little of more than routine, ordinary importance. Public interest was so completely absorbed with international affairs and the trend of the nation toward a major crisis that the legislative work in Illinois failed to seize upon the popular imagination with the exception of the filibuster and a mild popular reaction to the bill for extending Aid to Dependent Children.

These circumstances were almost perfect for the introduction and carrying through of bills in favor of minority special interests and for ulterior purposes contrary to the public good. The opportunity was recognized and vigorous efforts were made to take advantage of it by the representatives of numerous organizations, including several of special interest to medicine and public health. Among these were agencies which caused to be introduced proposals for the independent registration and licensing of chiropractors, naprapaths, psychologists, physiotherapists and electrologists and for the crippling of medical research by animal experimentation.

Any of these bills, all of which were highly objectionable in their original forms at least, might very well have passed except for the alertness and effective action of your Legislative Committee. SB103, proposing to license consulting psychologists, and SB570 proposing to cripple medical research by animal experimentation caused the most difficulty, gaining widespread favor in the Legislature.

A strong deputation of psychologists from various universities appeared in favor of SB103 which would to all practical intents and purposes

establish consulting psychologists as practitioners in treating human ailments. The Bill was drawn up with great cleverness, introduced and handled by Majority Leader Benson in the Senate and put forward astutely by the psychologists. Through the efforts of your Legislative Committee, both in committee and by contact with the membership of the Senate, the bill was killed by vote on Third Reading in the Senate.

The companion bill, SB102, somewhat less objectionable but undesirable in that it would have required a consulting psychologist instead of a psychiatrist as a member of a county committee to consult with the county judge concerning the care of alleged feeble-minded, progressed to Third Reading in the House where it was killed on a vote.

From a medical point of view such proposals are objectionable because (1) psychology is still very far from an exact science and a system of licensing would introduce as legally authorized to practice a heterogeneous group without training or experience in the basic medical sciences; (2) physicians are well aware of the services and availability of psychologists and can call upon them as occasion arises just as bacteriologists or x-ray experts are now called on and because (3) a multiplicity of specialized professions for the treatment of human ailments tends to confuse the public and frequently works to the disadvantage of patients.

HB 570 was more astutely handled and was more cleverly drawn to hide its principal intent than any of the other bills of special medical interest. Expressed bluntly, it would have legalized the appointment by the Society for the Prevention of Cruelty to Animals special deputy sheriffs who would in fact have been authorized to harass research workers when using animals for experiments and would indeed have prohibited the use of animals for experimental purposes.

The Bill was supported primarily by Mrs. Irene McLaughlin, who used her justifiable fame and popularity as a former expert dancer, to win the privilege of speaking to the Senate membership from the rostrum of the chamber. Through emotional appeal and other influences this Bill was carried along until it reached a House Committee where it was recommended for passage. Through the work of your Legislative Committee with the able assistance of a self appointed delegation representing several medical

colleges the Bill was first amended to permit medical research on animals and later killed by the well known method of tabling.

Experience with these bills illustrates how easy it is for small groups representing special interests to obtain privileged legislation in the absence of alertness and effective work on the part of those with the public and general good at heart.

The other bills relating to registration, referred to above, made less headway, although all were recommended by committees for passage, required special attention and work on the part of your Legislative Committee.

Various other bills such as *HB 244* which would have set up a non-essential and unnecessary system of inspection of tourist camps and numerous bills relating to narcotics, workmen's compensation, medical aid to old age pensioners and a wide variety of other subjects required close study on the part of your Committee in order that it could give intelligent and sound advice to legislators and department heads who sought opinion and counsel.

Perhaps the most important and significant piece of constructive legislation in the medical field enacted by the Sixty-Second General Assembly is the law creating a Medical Center in Chicago and granting authority to the Commission which will enable it to bring about improvements and exercise such regulations as to make of the prescribed area one of the most extensive, efficient and beautiful medical centers in the world.

The volume and character of legislation related to medicine and public health offered and the fate of each proposal are indicated in the list of bills appended hereto. A glance at the list will suggest the magnitude of the task of your Legislative Committee in keeping informed on legislative activity and in accomplishing its work.

The Committee is indebted to the officers of the Society and to many members for their unflinching assistance, advice and counsel in the legislative work. For this the Committee wishes to express its gratitude and appreciation.

Robert H. Hayes, M. D., Chairman
Mather Pfeifferberger, M. D.

Harry Otten, M. D., Committee on
Medical Legislation

BILLS OF SPECIAL MEDICAL IMPORTANCE MEDICAL

- S.B. 103 Independent registration and licensing of Consulting Psychologists. DEFEATED
- H.B. 315 Independent registration and licensing of Chiropractors. DEFEATED
- H.B. 231 Independent registration and licensing of Naprapaths. DEFEATED
- H.B. 354 Independent registration and licensing of Physiotherapist. DEFEATED
- S.B. 570 Provides for appointment of special deputy sheriffs by Society for Cruelty to Animals. DEFEATED
- H.B. 165 Creates Medical Center in Chicago PASSED
- H.B. 11 Prohibits M. D. License to Aliens. VETOED
- S.B. 176 Independent registration and licensing of Electrologists. FAILED
- H.B. 896 Required counties to lay special tax for funds to treat indigent cancer patients. VETOED
- H.B. 35 Appropriates \$65,000 to the Department of Public Welfare for equipment for Cancer Control. For use by the State Research and Educational Hospital of Chicago to purchase radium and radium pack, X-ray and other equipment and instruments. FAILED
- H.B. 202 Revises state narcotic Act in conformity with recommendations of Federal Government. FAILED
- S.B. 155 Permits sale by manufacturers of narcotics on order of licensed physicians to certain Army and Navy officials and certain Aircraft employees. FAILED
- H.B. 307 State to pay all necessary medical, surgical and hospitalization needs of old age assistance recipients without regard to the existing \$40 limitation. FAILED
- S.B. 190 State shall pay all necessary medical, surgical and hospitalization needs of old age assistance recipients in addition to regular allowance for pension. FAILED
- H.B. 342 Authorizes State to pay all emergency medical, surgical and hospitalization needs of old age recipients without regard to \$40 limitation. Increases funeral expenses maximum from \$100 to \$150. FAILED
- H.B. 344 County Board may appoint a board of three physicians to determine whether old age assistance applicant is 65 years old. FAILED
- H.B. 363 Provides for sexual sterilization of patients of state institutions. FAILED
- S.B. 211 Amends optometry Act; requires applicants for registration to be citizens and free from contagious diseases. FAILED
- H.B. 483 Would compel the attendance of a physician at each race track to examine jockeys three hours before such jockey is to ride. Examination would be as to physical fitness. FAILED

- S.B. 417 Amends section 1 of the Uniform Narcotic drug Act. FAILED
- S.B. 170 Amends section 1, of an Act to regulate the founding and operation of Research and Educational Hospitals. Permits such hospitals to establish and maintain infirmaries. PASSED
- H.B. 629 Amends Narcotic Act by including diethylbarbituric acid as a drug. FAILED
- H.B. 168 Impose tax for two 1000-bed hospitals for incurables. FAILED
- S.B. 257 Requires submission to voters of a proposal to issue bonds for support of a public hospital in cities of less than 100,000 population. FAILED
- S.B. 367 Changes of physically handicapped children to include those of 18 or under, instead of 16 or under for treatment of tuberculosis and other diseases. PASSED
- H.B. 26 Prohibits the State of Illinois or any of its departments, offices, divisions, commissions, boards or agencies from employing aliens. FAILED
- H.B. 57 Adds section 3 to the Optometry Act. No person shall conduct, maintain, own, operate or provide for more than one optometry office. FAILED
- H.B. 58 Same as H.B. 57 but applying to dentists. FAILED
- H.B. 231 Regulates and licenses practitioners of naprapathy. DEFEATED
- H.B. 809 Regulates the practice of chiropody. FAILED
- S.B. 176 Provides for regulation of practice of electrolysis. FAILED
- H.B. 354 Regulates the licensing and practice of Physio-therapy. DEFEATED
- S.B. 402 Amends State Nursing Act; provides that a supervisor of nurse education shall be appointed by the Director of Registr. & Education to annually inspect and supervise standards of maintenance, instruction and training to be maintained by schools of nursing. FAILED
- H.B. 574 Makes minimum requirement of college of chiropody 4,160 hours. FAILED
- H.B. 909 Makes it unlawful for a person to practice chiropody without a license. FAILED
- H.B. 35 Appropriated \$65,000 to purchase radium for State Research and Educational Hospital. FAILED
- H.B. 910 Appropriates \$200,000 to Health Department to treat indigent cancer patients. FAILED
- H.B. 911 Appropriates \$1000 for the creation of a legislative committee of seven to investigate chronic diseases among indigents. PASSED
- PUBLIC HEALTH**
- S.B. 433 Appropriation of \$2,228,121 to the Department of Public Health. PASSED
- H.B. 244 Placing licensing and regulation of tourist camps in the Department of Public Health through the Superintendent of Lodging House Inspection. DEFEATED
- S.B. 193 Gives board of directors of school districts right to require teachers to furnish evidence of physical fitness as well as evidence of professional growth. PASSED
- S.B. 202 Amends local improvement Act; gives municipalities right to extend water mains which are a part of any municipal water works system. APPROVED
- S.B. 356 Revises Act authorizing to build or purchase water works systems. PASSED
- H.B. 30 Authorizes cities of less than 500,000 to build or purchase water works. FAILED
- H.B. 51 Restaurant employees submit to annual health examinations, made by Department of Public Health. FAILED
- H.B. 159 School boards to provide safe drinking water for schools. FAILED
- H.B. 179 Grants limited rights of eminent domain to privately-financed neighborhood redevelopment corporations to stimulate slum clearance in Chicago. PASSED
- S.B. 250 Provides act to limit indebtedness of down-state counties shall not apply to debts incurred by sanitary districts. PASSED
- S.B. 514 Amends section 1.7 of the Indebtedness Limitation Act. Provides that the limitation prescribed in section 1, does not apply to any of any sanitary district incorporated under "An Act to create sanitary districts and provide for sewage disposal." PASSED
- H.B. 787 Amends sanitary district Act relative to sewage disposal and the debt limitation thereof. PASSED
- S.B. 582 Gives cities right to raise additional funds for improvement of waterworks systems found inadequate to meet demands of War Department in connection defense program. PASSED
- H.B. 532 City waterworks systems may be extended to serve any unincorporated area within ten miles of the location of the waterworks. PASSED
- S.B. 608 Gives Cook County authority to establish and maintain a Department of Public Health. FAILED
- S.B. 616 Amends law in relation to water supply systems; provides that in downstate, cities, counties and villages are authorized to build or purchase water-works systems and to improve and extend such systems to serve any unincorporated area 10 miles of corporate limits of such city. FAILED
- H.B. 278 Amends sections 15 and 20 of an Act authorizing the organizing of public health districts and adds section 21 thereto providing for a revote on proposition at ten year intervals. PASSED
- H.B. 920 Authorizing cities outside of Chicago to issue refunding bonds without referendum for combined water and sewer and sewer utility. PASSED

- S.B. 689 Amends sanitary act for inclusion of additional contiguous territory to districts on petition of 10 percent of voters calling for a referendum on proposition. PASSED
- S.B. 715 Municipalities adjacent to Federal projects may levy special tax to provide water supplies, sewage systems and highway systems to meet changing conditions. PASSED
- S.B. 396 Creates public water supply operators examining board. FAILED
- S.B. 397 Required Department of Public Health to approve plans for installing or changing public water supply systems and greater supervising power over public water supplies. FAILED
- S.B. 252 Provides standards under which Grade A milk products may be sold. PASSED
- ### OTHER RELATED BILLS
- H.B. 823 Appropriates \$1000 to repair Ottawa Mineral Springs. FAILED
- H.B. 492-493 Establishes Milk Marketing Commission and makes appropriation. FAILED
- S.B. 164 Appropriates \$25,000 for educable mentally handicapped. FAILED
- S.B. 412 Appropriates \$450,000 to pay hospital and medical bills for indigents injured by motor accidents. FAILED
- S.B. 31 Amends a law "In relation to marriages" to read "application required of the parties applying for license may be made not sooner than one day nor later than fifteen days subsequent to the date that the physician made the examination as certified by him." Amends Marriage Law. FAILED
- S.B. 48 Deficiency appropriation of \$50,000 for eradication of tuberculosis and other diseases in livestock. FAILED
- H.B. 140 Deficiency appropriation of \$50,000 to eradicate disease in livestock. FAILED
- H.B. 149 Eliminates necessity for making application for marriage license three days before such license is issued. PASSED
- S.B. 161 Amends workmen's compensation Act; provides that no employers shall be required to pay any bill for a physician or surgeon or hospital service selected by an employee, but not the employer, unless Industrial Commission has approved the bill. FAILED
- H.B. 969-970 Amendments to Workman's Compensation and Occupational Disease Acts. FAILED
- S.B. 682 Amends Workmen's Occupational Disease Act. PASSED
- H.B. 179 Grants limited rights of eminent domain to privately-financed neighborhood redevelopment corporations to stimulate slum-clearance in Chicago and downstate cities. PASSED
- H.B. 443 Prohibits the cremation of deceased persons within 48 hours after death, unless death was caused by a contagious disease (or infectious disease). FAILED
- H.B. 897 Schools to be recognized must comply with provisions for physical education, health education and safety education. FAILED
- H.B. 913 Provides for the setting up in the schools of the State instruction of physical education and safety education. FAILED
- H.B. 287 Appropriates \$300,000 to the Milk Marketing Board to administer. FAILED
- H.B. 288 Regulates education, marketing, sale and Distribution of milk and creates a Milk Marketing Board. FAILED
- H.B. 492-493 Regulates the receipt, purchase and sale of and settlement for milk and milk products. Regulation placed in the Department of Agr., sets up revolving fund of \$50,000 for administration of Act. FAILED
- S.B. 286 Adds several sections to the Pure Food Regulations Act. PASSED
- S.B. 276 Amends Bovine Tuberculosis Act; reduces minimum to be paid to owner for cattle destroyed under the Act to \$25 and \$50 maximum. PASSED
- S.B. 415 Requires persons operating dairy plants or receiving stations handling 250 pounds or more fluid milk per day obtain a license from the Department of Agriculture. FAILED
- H.B. 866 Regulates sale or advertising of foods, drugs, devises and cosmetics. FAILED
- S.B. 641 Regulates sale of products containing barbital or barbital derivatives. FAILED
- H.B. 61 Prohibits use of fireworks unless permits has been issued by city council or trustees of township. FAILED
- H.B. 66 Creates state funds from which employers may buy workmen's compensation, and occupational disease insurance. FAILED
- H.B. 70 Operators of fireworks displays must be approved by chiefs of the police and fire departments of the municipality. State Fire Marshall to adopt rules and regulations. PASSED
- H.B. 80 Amends the Unemployment Compensation Act. FAILED
- H.B. 86 Makes fifteen-hundredths of one percent, or more by weight of alcohol, evidence that defendant in auto accident case was under the influence of intoxicating liquor. FAILED
- S.B. 15 Makes fifteen-hundredths of one percent or more by weight of alcohol evidence that defendant in auto accident case was under the influence of intoxicating liquor. VETOED
- S.B. 18. No person shall have in his possession, or purchase any firearm unless he holds a firearm certificate granted by a sheriff, chief of police or Director of the Department of Conservation. FAILED
- S.B. 20 Creates a commission for the education of mentally handicapped children. FAILED
- S.B. 21 Regulates manufacture and sale of fireworks. FAILED

- S.B. 24 Labor's amendment to the Unemployment Compensation Act. FAILED
- H.B. 97 Applicant for drivers license to submit to an examination of his eyesight. FAILED
- H.B. 132 To compel owners of pleasure vehicles to obtain personal injury liability insurance. FAILED
- H.B. 160 Amends deadly weapon Act. FAILED
- H.B. 169 Prohibits sale at retail of many types of fireworks now permitted by law. FAILED
- H.B. 217 Revises law relative to care of mentally ill persons, and repeals existing Act. FAILED
- S.B. 102 Amends law to care for feeble minded persons. FAILED
- S.B. 111 Creates state funds for payments of benefits under workmen's compensation Act and occupational disease Act. FAILED
- H.B. 255 Creates a Commission for educating mentally handicapped children. FAILED
- H.B. 259 Amends Beauty Culture Act. FAILED
- S.B. 139 Prohibits sale of liquor to persons under 21. FAILED
- S.B. 153 Creation of fire prevention districts by referendum in districts. PASSED
- S.B. 158 Provides for equipping tractors with safety devises. FAILED
- H.B. 306 Delinquent children under the age of 16 designated as dependent children and not to be found guilty of any crime or misdemeanor in any court. VETOED
- S.B. 194 Amends workmen's occupational Act. FAILED
- H.B. 358 Increases payments under workmen's compensation Act. FAILED
- H.B. 340 Amends workmen's occupational disease Act by providing that compensation in death shall be 4.4 times the annual average earnings, but not less than \$2,750 not more than \$4,000. FAILED
- H.B. 370 Requires certificate of title for any pistol, revolver, gun or any weapon. FAILED
- H.B. 399 Provides aid to dependent children and appropriates \$16,000,000. PASSED
- H.B. 407 Prohibits inmates of institutions for criminally insane from doing any barbering. FAILED
- H.B. 412 Owners of motor vehicles made liable for injury, death or damage occasioned by neglect of their car by his or her father, mother, husband, wife, brother, sister, son or daughter. FAILED
- S.B. 363 Makes owner of dog liable for damages when the animal bites any person without provocation. FAILED
- S.B. 367 Changes age of physically handicapped children to include those of 18 or under, instead of 16. PASSED
- H.B. 534 Authorizes Boards of Education to set up a system for education of physically handicapped children. FAILED
- H.B. 631 To rewrite the Act relative to the Commitment of lunatics. Designates such persons to be mentally ill. VETOED
- H.B. 675 Department of Agriculture authorized to regulate cattle vaccinated against Bang's disease. PASSED
- H.B. 686 Amends sections 1 and 9 of an Act to Regulate Cold Storage of certain articles of food. PASSED
- H.B. 752 Authorizes establishment of speech correction Centers for children having defective speech. FAILED
- H.B. 830 All motor vehicles must take safety tests and secure certificates of safety. FAILED
- H.B. 930 Amends the Pharmacy Act to provide that at least two of a corporation operating a drug store to be registered pharmacists in Illinois. PASSED
- S.B. 682 Amends Workmen's Occupational Disease Act, providing that where death occurs to an employee as the result of an occupational disease sustained after July 1, 1941, the compensation provided by Section 7, subsections (a), (b), (c) and (e) shall be increased 10%. PASSED
- H.B. 168 Imposes a tax of three-hundredths of a mill upon the equalized assessed valuation of the taxable property of the state for the construction of two One-thousand bed hospitals, one in Cook County and one in Morgan County. FAILED
- H.B. 199 Amends Vital Statistics Law. FAILED
- H.B. 200 Law relating to adoption of children, rewritten. FAILED
- S.B. 97 Regulates fees for certified birth certificates. PASSED
- H.B. 960 Additional authority to Dept. of Public Health, in re Vital Statistics. FAILED

Yellow Fever—For more than twenty years the Rockefeller Foundation has been an important factor in the control of yellow fever in a number of South American republics. During this time many contributions relating to the yellow fever problem have been made by medical men associated with this organization. Unfortunately there is no specific treatment for yellow fever. The strategy of the campaign against the disease has been complicated by the fact that yellow fever, as has been known for a number of years, exists in tropical forests in the absence of *Aedes aegypti* mosquitoes. As pointed out by Bauer, this "jungle yellow fever" is ordinarily restricted to lower animals and is only accidentally transmitted to human beings. Nevertheless, persons who do become infected with the disease, which does not differ essentially from *Aedes aegypti* borne yellow fever, many serve as a source of infection for *Aedes aegypti* mosquitoes on entering a community where these insects occur. The disease may then be further spread by the mosquitoes and an epidemic may be initiated.—Ed., J.A.M.

Correspondence

ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY MEETS IN CHICAGO OCTOBER 19-23, 1941

The forty-sixth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held at the Palmer House, Chicago, October 19-23, under the presidency of Dr. Frank R. Spencer, Boulder, Colo.

The academy's program consists of one general scientific meeting on the morning of the first day, separate programs for the two specialties on alternate afternoons and instructional courses every morning beginning on Tuesday.

The feature of this year's general opening meeting will be a symposium on vertigo, with Dr. Francis H. Adler, Philadelphia, representing ophthalmology; Dr. William J. McNally, Montreal, otolaryngology, and Dr. Bernard Alpers, Philadelphia, neurology. Among papers to be presented during the remainder of the week will be the following:

Dr. Alfred W. Adson, Rochester, Minn., Surgical Treatment of Vascular Diseases of the Orbit.

Dr. Albert N. LeMoine, Kansas City, Mo., Allergy and ophthalmology.

Drs. John H. Dunnington and Maynard Wheeler, New York, Operative Results in 200 Cases of Convergent Strabismus.

Dr. W. F. Petersen, Chicago, Otolaryngological Problems and the Weather.

Dr. Mark J. Schoenberg, New York, The Problem of Preventing Partial or Total Loss of Vision in Glaucoma Patients of Eye Clinics.

Dr. Charles T. Porter, Boston, Practical Uses of Chemotherapy in Ear, Nose and Throat Work.

Dr. Rea E. Ashley, San Francisco, The Use of Urea in Certain Diseases of the Ears, Nose and Throat.

Dr. Alfred J. Cone, St. Louis, Treatment of Sinus Diseases in Children.

Dr. Frederick T. Hill, Waterville, Maine, What Otolologists Can Do For Defective Hearing.

During the convention there will be various meetings of small groups, including the "Teachers' Section," secretaries of local eye, ear, nose and throat societies and alumni organizations. The meeting of the teachers' section will be concerned especially with the role of the Academy in national defense during the present emergency. There will also be a scientific exhibit that will include such subjects as "Ocular Conditions in Children Due to Systemic Disease," "Conduction of Sound in the Ear," "Hemophilia and Other Blood Dyscrasias as Manifest in the Eye, Ear, Nose and Throat," "Cancer of the Larynx" and "Significance of the Eyegrounds in the Problem of Hypertension."

Alternating with the scientific programs of the specialties each afternoon will be an elaborate motion picture program. Thus when the section of ophthalmology is meeting for formal presentation of papers, motion pictures on otolaryngology will be available for those interested in that field.

Dr. Perry Goldsmith, professor of otolaryngology in the University of Toronto Faculty of Medicine, Toronto, Ont., will be the academy's guest of honor this year.

Officers of the academy in addition to Dr. Spencer are Drs. Ralph Irving Lloyd, Brooklyn, president-elect; Everett L. Goar, Houston, Texas, James M. Robb, Detroit, and Ralph O. Rychener, Memphis, Tenn., vice presidents; and Secord H. Large, Cleveland, comptroller. Dr. William P. Wherry, Omaha, Neb., is executive secretary-treasurer.

EXAMINATIONS FOR MEDICAL POSITIONS ANNOUNCED BY CIVIL SERVICE COMMISSION

Examinations for three types of medical positions in the Government service have just been announced by the Civil Service Commission. This is another indication of the great demand for technically trained personnel of every kind in the defense program. Each of these positions has been open to competition within the past year, but the demand grows even faster than the supply.

Junior medical officer positions at \$2,000 a year will be filled at St. Elizabeths Hospital in Washington, D. C. There are two types of internship: Rotating and Psychiatric Resident. The rotating internship consists of 4 months of surgery, acute medical service, and of chronic medical service; 2 months of obstetrics and of pediatrics, on affiliation; 3 months of general laboratory work; and 6 months of psychiatry. To qualify, applicants must be fourth-year students in a Class A medical school. Applicants must show completion of the course prior to June 30, 1942 before they may enter on duty. Graduates in medicine who have already served an accredited rotating internship are offered a postgraduate internship of 1 year of psychiatry (American Medical Association Classification 2, Type B.) To qualify for this type of appointment, applicants must have completed their fourth year of study in a Class A Medical school subsequent to December 1935 and must have either a B.M. or M.D. degree. Applications will be accepted at the Commission's Washington office until *November 15, 1941*, and will be rated as soon as practicable after receipt.

Medical technical assistant positions at \$2,000 a year and medical guard-attendant positions at \$1,620 a year will be filled in the Mental Hygiene Division of the U. S. Public Health Service. Applicants must be registered graduate nurses, or have been honorably discharged (within the 10 years immediately preceding date of receipt of application) from active service in the Medical Corps of the Army or Navy, or have had 3 years' service as guard-attendant in a Federal penal or correctional institution. In addition, for the technical assistant, applicants must show that their experience has included one year of responsible training or experience in Clinical Laboratory Technique, Pharmacy, or X-ray Lab-

oratory Technique. Applications will be accepted *until further notice*. Persons who were rated eligible for these two positions in the examination which closed in February of this year need not apply for this new examination as eligibles from both examinations will be combined on the new register.

Further information and application forms may be obtained at any first- or second-class post office or from the Civil Service Commission in Washington. Qualified persons are urged to file their applications at once.

RETURN YOUR INFORMATION CARD FOR THE DIRECTORY PROMPTLY

About September 1, an information card will be sent from the headquarters office of the American Medical Association to every physician in the United States and Canada. The information secured is to be used in compiling the Seventeenth Edition of the **AMERICAN MEDICAL DIRECTORY**.

The directory is prepared at regular intervals in the Biographical Department of the American Medical Association. The last previous edition appeared in 1940. This volume is one of the most important contributions of the American Medical Association to the work of the medical profession in the United States; it has been especially valuable in the medical preparedness program. In it, as in no other published directory, are dependable data concerning physicians, hospitals, medical organizations and activities. The directory provides full information concerning medical colleges, specialization in the field of medical practice, memberships in special medical societies, tabulations of medical journals and medical libraries and, indeed, practically every important fact concerning the medical profession in which any one might possibly be interested.

Before filling out the information card, read the instructions carefully. Physicians are especially urged to state whether or not they are on extended active duty for the medical reserve corps of the United States Army and Navy. Fill out the card and return it promptly whether or not a change has occurred in any points on which information is requested. If a change of address occurs before March 1, 1942, report it at once. Should you fail to receive a card before the first of October, write at once to the head-

quarters office stating that fact and a duplicate card will be mailed.

IOWA AND ILLINOIS CENTRAL DISTRICT MEDICAL ASSOCIATION

The fall meeting of the Iowa and Illinois Central District Medical Association will be held Thursday September 11 at the Ski Hi ballroom at the Le Claire Hotel in Moline, Illinois.

At 7:45 Dr. D. B. Freeman of Moline will give a short paper, illustrated with motion pictures, "Epithelioma of the Lower Lip."

At 8 P. M. Dr. Ralph A. Kinsella, professor of internal medicine, St. Louis University School of Medicine, St. Louis, Mo. will deliver the principal address of the evening, "Endocarditis." Dr. Kinsella will be introduced by Dr. R. P. Carney of Davenport.

The discussion of Dr. Kinsella's address will be opened by Drs. George Braunlich of Davenport and H. W. Shuman of Rock Island.

A dinner at 6:30 P. M. sharp will precede the meeting.

ANNUAL PRIZE TO BE GIVEN

The American Neisserian Medical Society announces an annual prize of one hundred dollars, to be known as the P.S. Pelouze Award, to be presented to the person under thirty-five years of age who, in the opinion of the Committee of Awards, has made the outstanding contribution to the control of the gonococcal infections during the preceding year.

Nominations for the award should be sent to the Secretary not later than March 31 of each year. The winner will be announced at the subsequent annual meeting of the Society.

Oscar F. Cox, M.D., Secretary
475 Commonwealth Ave.,
Boston, Mass.

RESEARCH GRANT

The University of Illinois has accepted a grant of \$2,000.00 from Parke, Davis & Company, Detroit, Michigan. The grant was made toward the support, for the next six months, of research on the pathogenesis and therapy of experimental renal hypertension being conducted in the Departments of Physiology and Physiological Chemistry of the College of Medicine by Dr. George E. Wakerlin and Dr. C. A. Johnson.

ELECTION OF AMERICAN COLLEGE OF CHEST PHYSICIANS

The American College of Chest Physicians held its annual meeting at the Statler Hotel from May 31 to June 2, and the following officers were elected for 1941-1942:

Dr. J. Winthrop Peabody, Washington, D. C., president-elect; Dr. J. Arthur Myers, Minneapolis, first vice president; Dr. Grover G. Bellinger, Salem, Ore., second vice president; Dr. Paul H. Holinger, Chicago, secretary-treasurer.

Dr. Benjamin Goldberg, Chicago, is the incoming president of the college. Dr. John H. Peck, Oakdale, Iowa, is the retiring president.

PROGRAM

International Medical Assembly
Inter-State Postgraduate Medical
Association of North America

October 13-14-15-16-17, 1941

Pre-assembly Clinics, Saturday, October 11
Post-assembly Clinics, Saturday, October 18
Minneapolis Hospitals

MINNEAPOLIS, MINNESOTA

MONDAY, OCTOBER 13

8:00 A. M.

Diagnostic Clinic: "Modern Treatment of Syphilis."

Dr. Paul A. O'Leary, Professor of Dermatology and Syphilology, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minnesota.

Diagnostic Clinic: "The Management of Intra-thoracic Tumors."

Dr. John Alexander, Professor of Surgery, University of Michigan School of Medicine, Ann Arbor, Michigan.

Diagnostic Clinic: "Pancreatic Hepatic Syndrome."

Dr. Warren H. Cole, Professor of Surgery, University of Illinois School of Medicine, Chicago, Illinois.

Intermission for Review of Exhibits

Diagnostic Clinic: "Goitre."

Dr. Robert S. Dinsmore, Cleveland Clinic, Cleveland, Ohio.

Diagnostic Clinic: "Undulant Fever."

Dr. Chester S. Keefer, Wade Professor of Medicine, Boston University School of Medicine, Boston, Massachusetts.

Noon Intermission

1:00 P. M.

Diagnostic Clinic: "Maintenance of Nutrition in Surgical Patients."

Dr. Isidor S. Ravdin, George Leib Harrison Professor of Surgery, University of Pennsylvania

School of Medicine, Philadelphia, Pennsylvania.
Diagnostic Clinic: "Medical Treatment of Gallstones and Cholecystitis."

Dr. John H. Musser, Professor of Medicine, Tulane University School of Medicine, New Orleans, Louisiana.

Address: "Coronary Artery Disease."

Dr. A. Carlton Ernste, Head of the Cardio-respiratory Department, Cleveland Clinic, Cleveland, Ohio.

Address: "Cruciate Ligaments of the Knee Joint; Etiology, Pathology, Symptoms, Repair."

Dr. William R. Cubbins, Clinical Professor of Bone and Joint Surgery, Loyola University School of Medicine, Chicago, Illinois.

Intermission for Review of Exhibits

Address: "Migraine."

Dr. Carl D. Camp, Professor of Neurology and Chairman of the Department, University of Michigan School of Medicine, Ann Arbor, Michigan.

Address: "Uterine Bleeding."

Dr. Emil Novak, Associate Professor of Obstetrics, University of Maryland School of Medicine, Baltimore, Maryland.

Address: "Recent Advances in Our Knowledge of Tetanus."

Dr. Warfield M. Firor, Associate Professor of Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland.

Address: "Pitfalls in X-ray Diagnosis."

Dr. Harold D. Kerr, Professor of Radiology, State University of Iowa School of Medicine, Iowa City, Iowa.

Dinner Intermission

7:00 P. M.

Address: "High Concentrations of Oxygen in Surgery."

Dr. Charles W. Mayo, Assistant Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minnesota.

Address: "Possibilities of Attainment in the Conservation of Hearing."

Dr. Horace Newhart, Professor of Otolaryngology, University of Minnesota School of Medicine, Minneapolis, Minnesota.

Address: "Anesthesia and Surgery."

Dr. Edwin R. Schmidt, Professor of Surgery, University of Wisconsin School of Medicine, Madison, Wisconsin.

Address: "Psychoses of Different Age Levels."

Dr. Louis J. Karnosh, Associate Clinical Professor of Nervous Diseases, Western Reserve University School of Medicine, Cleveland, Ohio.

Address: "Virus Diseases."

Dr. Robert G. Green, Professor of Bacteriology, University of Minnesota Medical School, Minneapolis, Minnesota.

Address: "Hypertension and the Surgical Kidney."

Dr. William F. Braasch, Professor of Urology, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minnesota.

Tuesday, October 14

8:00 A. M.

Diagnostic Clinic: "Stones in the Upper Urinary Tract."

Dr. C. Donald Creevy, Assistant Dean and Associate Professor of Surgery and Urology, University of Minnesota School of Medicine, Minneapolis, Minnesota.

Diagnostic Clinic: "Diseases of the Lungs in the Aged."

Dr. James G. Carr, Professor of Medicine, Northwestern University School of Medicine, Chicago, Illinois.

Diagnostic Clinic: "Carcinoma of the Stomach."

Dr. George P. Muller, Professor of Surgery, Jefferson Medical College, Philadelphia, Pa.

Intermission for Review of Exhibits

Diagnostic Clinic: "Neuritides."

Dr. John C. McKinley, Professor of Medicine and Nervous and Mental Diseases, University of Minnesota Medical School, Minneapolis, Minn.

Diagnostic Clinic: "Endocrine Problems in the Male."

Dr. Willard O. Thompson, Clinical Professor of Medicine, Rush Medical College of the University of Chicago, Chicago, Illinois.

Noon Intermission

1:00 P. M.

Diagnostic Clinic: "Management of Cardiac Patients Who Require Surgery."

Dr. Herrman L. Blumgart, Associate Professor of Medicine, Harvard Medical School, Boston, Massachusetts.

Diagnostic Clinic: "Management of Complicated Fractures of the Extremities."

Dr. Clay Ray Murray, Associate Professor of Surgery, Columbia University College of Physicians and Surgeons, New York, New York.

Address: "The Prevention and Medical Treatment of Preeclamptic and Eclamptic Toxemia of Pregnancy."

Dr. Soma Weiss, Hersey Professor of the Theory and Practice of Physic, Harvard Medical School, Boston, Massachusetts.

Address: "The Role of the General Practitioner in the Prevention of Blindness."

(The Schneider Foundation Eye Presentation)

Dr. Harry S. Gradle, Professor of Ophthalmology (Extra Mural), Northwestern University School of Medicine, Chicago, Illinois.

Intermission for Review of Exhibits

Address: "Purpura."

Dr. Ernest H. Falconer, Clinical Professor of Medicine, University of California School of Medicine, San Francisco, California.

Address: "Cause and Treatment of Circulatory Failure in Surgery."

Dr. Dallas B. Phemister, Professor of Surgery, University of Chicago, The School of Medicine, Chicago, Illinois.

Address: "The Treatment of Injuries to the Peri-

pheral Arteries with Particular Reference to Arteriovenous Fistula."

Dr. Emile F. Holman, Professor of Surgery, Stanford University School of Medicine, San Francisco, California.

Address: "The Diagnosis and Surgical Management of Brain Tumors."

Dr. Alfred W. Adson, Professor of Neurosurgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minnesota.

Dinner Intermission

7:00 P. M.

Address: "Diagnosis and Treatment of Wounds of the Heart."

Dr. Daniel C. Elkin, Joseph B. Whitehead Professor of Surgery, Emory University School of Medicine, Atlanta, Georgia.

Address: "The Parathyroids and Diseases of the Bones."

Dr. Thomas P. Sprunt, Professor of Clinical Medicine, University of Maryland School of Medicine; Visiting Physician, Johns Hopkins Hospital, Baltimore, Maryland.

Address: "Prostatic Obstruction."

Dr. William E. Lower, Cleveland Clinic, Cleveland, Ohio.

Address: "Nonoperative Treatment of Acute and Chronic Sinus Disease."

Dr. George E. Shambaugh, Jr., Associate Clinical Professor of Laryngology and Otolaryngology, Rush Medical College, Chicago, Illinois.

Address: "The Use of Pedicle Muscle Grafts in Obliterating Non-tuberculous Empyema Cavities."

Dr. Howard K. Gray, Assistant Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minnesota.

Address: "Disturbances of the Vascular System in Pregnancy."

Dr. John L. McKelvey, Professor of Obstetrics and Gynecology, University of Minnesota School of Medicine, Minneapolis, Minnesota.

Wednesday, October 15

8:00 A. M.

Diagnostic Clinic: "Regional Ileitis."

Dr. Claude F. Dixon, Associate Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minnesota.

Diagnostic Clinic: "Types of Clinical Nutritional Deficiency."

Dr. Virgil P. W. Sydenstricker, Professor of Medicine, University of Georgia School of Medicine, Augusta, Georgia.

Diagnostic Clinic: "Bleeding Peptic Ulcers."

Dr. Roscoe R. Graham, Assistant Professor of Surgery, University of Toronto Faculty of Medicine, Toronto, Canada.

Intermission for Review of Exhibits

Diagnostic Clinic: "The Itching Skin."

Dr. Oliver S. Ormsby, Clinical Professor of Dermatology, Rush Medical College, Chicago, Illinois.

Diagnostic Clinic: "Surgery of the Biliary Tract."

Dr. Frank H. Lahey, Lahey Clinic, Boston, Mass.

Noon Intermission

1:00 P. M.

Diagnostic Clinic: "Differential Diagnosis and Treatment of Anemia."

Dr. Russell L. Haden, Cleveland Clinic, Cleveland, Ohio.

Pathological Clinical Conference:

Participants:

Dr. Henry M. Winans, Professor of Medicine, Baylor University College of Medicine, Dallas, Texas.

Dr. Virgil P. W. Sydenstricker, Professor of Medicine, University of Georgia School of Medicine, Augusta, Georgia.

Dr. E. T. Bell, Professor of Pathology, University of Minnesota Medical School, Minneapolis, Minn.

Dr. Owen Wangenstein, Professor of Surgery, University of Minnesota School of Medicine, Minneapolis, Minnesota.

Dr. Leo G. Rigler, Professor of Radiology, University of Minnesota School of Medicine, Minneapolis, Minnesota.

Address: "Postoperative Pulmonary Complications."

Dr. Elliott C. Cutler, Moseley Professor of Surgery, Harvard Medical School, Boston, Mass.

Address: "Plastic Operations on the Lower Urinary Tract for Congenital Deformities."

Dr. Hugh H. Young, Professor of Urology, Johns Hopkins University School of Medicine, Baltimore, Maryland.

Intermission for Review of Exhibits

Address: "Significance of Convulsions."

Dr. Walter E. Dandy, Adjunct Professor of Neurological Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland.

Address: "Treatment of Gonadal Hypofunction in the Female."

Dr. Elmer L. Sevringhaus, Professor of Medicine, University of Wisconsin School of Medicine, Madison, Wisconsin.

Address: "Some of the Advantages of Closed Anastomosis in Gastrointestinal Resections."

Dr. Owen H. Wangenstein, Professor of Surgery, University of Minnesota School of Medicine, Minneapolis, Minnesota.

ASSEMBLY DINNER

7:00 P. M.

For members of the profession, their ladies and friends.

Informal

Dr. Roscoe R. Graham, President of the Inter-State Postgraduate Medical Association of North America — Master of Ceremonies.

Thursday, October 16

8:00 A. M.

Diagnostic Clinic: "Burns and Reconstructive Surgery."

Dr. N. Logan Leven, Assistant Professor of Clinical Surgery, University of Minnesota School of Medicine, St. Paul, Minnesota.

Diagnostic Clinic: "Unexplained Fever."

Dr. J. Murray Kinsman, Associate Professor of Medicine, University of Louisville School of Medicine, Louisville, Kentucky.

Diagnostic Clinic: "Diverticulitis."

Dr. John F. Erdmann, Attending Surgeon, New York Postgraduate Medical School, New York, New York.

Intermission for Review of Exhibits

Diagnostic Clinic: "The Etiology and Treatment of Nephrosis in Children."

Dr. Irvine McQuarrie, Professor of Pediatrics, University of Minnesota School of Medicine, Minneapolis, Minnesota.

Diagnostic Clinic: "Cancer of the Colon."

Dr. Thomas E. Jones, Cleveland Clinic, Cleveland, Ohio.

Noon Intermission

1:00 P. M.

Diagnostic Clinic: "Clinical Demonstration of Cases Illustrating the Common Types of Arthritis and the Present Status of Therapy."

Dr. Ralph Pemberton, Professor of Medicine, University of Pennsylvania Postgraduate School of Medicine, Philadelphia, Pennsylvania.

Diagnostic Clinic: "Automobile Injuries."

Dr. John J. Moorhead, Professor of Clinical Surgery, New York Postgraduate Medical School, New York, New York.

Address: "The Rise and Fall of Focal Infection."

Dr. Russell L. Cecil, Professor of Clinical Medicine, Cornell University Medical College, New York, New York.

Address: "Bronchiectasis."

Dr. Evarts A. Graham, Professor of Surgery, Washington University School of Medicine, St. Louis, Missouri.

Intermission for Review of Exhibits

Address: "Pneumonia."

Dr. Hobart A. Reimann, Magee Professor of Practice of Medicine and Clinical Medicine, Jefferson Medical College, Philadelphia, Pennsylvania.

Address: "Osteomyelitis."

Dr. Frank R. Ober, Assistant Dean and John B. and Buckminster Brown Clinical Professor of Orthopedic Surgery, Harvard Medical School, Boston, Massachusetts.

Address: "Cesarean Section."

Dr. John R. Fraser, Professor of Obstetrics and Gynecology, McGill University Faculty of Medicine, Montreal, Canada.

Address: "Physiological Studies on the Usefulness of Helium in Respiratory Mixtures."

Dr. Maurice B. Visscher, Professor of Physiology, University of Minnesota Medical School, Minneapolis, Minnesota.

Dinner Intermission

7:00 P. M.

Address: "Peritonitis."

Dr. Frederick A. Collier, Professor of Surgery, University of Michigan School of Medicine, Ann Arbor, Michigan.

Address: "Heredity in the Clinic."

Dr. Lewellys F. Barker, Professor Emeritus of Medicine, Johns Hopkins University School of Medicine, Baltimore, Maryland.

Address: "Subcutaneous Injuries of the Abdomen."

Dr. Frederick Christopher, Associate Professor of Surgery, Northwestern University School of Medicine, Evanston, Illinois.

Address: "Renal Tuberculosis."

Dr. Herman L. Kretschmer, Clinical Professor of Surgery (Genito-Urinary), Rush Medical College, Chicago, Illinois.

Address: "Present Status of Surgery of the Heart."

Dr. Claude S. Beck, Associate Professor of Surgery, Western Reserve University School of Medicine, Cleveland, Ohio.

Address: "Preoperative Preparation for Gastro-Intestinal Surgery."

Dr. Verne C. Hunt, Clinical Professor of Surgery, University of Southern California School of Medicine, Los Angeles, California.

Address: "Clinical Use of Digitalis."

Dr. Peter T. Bohan, Professor of Medicine, University of Kansas School of Medicine, Kansas City, Missouri.

Friday, October 17

8:00 A. M.

Diagnostic Clinic: "Nervous Exhaustion as a Cause of Gastrointestinal Symptoms."

Dr. Walter C. Alvarez, Professor of Medicine, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minnesota.

Diagnostic Clinic: "The Problem of Difficult Hernias."

Dr. W. Wayne Babcock, Professor of Surgery and Clinical Surgery, Temple University School of Medicine, Philadelphia, Pennsylvania.

Diagnostic Clinic: "Differential Diagnosis of Jaundice."

Dr. Wallace M. Yater, Professor of Medicine and Director of the Department, Georgetown University School of Medicine, Washington, D. C.

Intermission for Review of Exhibits

Diagnostic Clinic: "Ulcerative Colitis."

Dr. Richard B. Cattell, Lahey Clinic, Boston, Massachusetts.

Diagnostic Clinic: "The Treatment of Diabetes of Long and Short Duration."

Dr. Elliott P. Joslin, Clinical Professor of Medicine, Harvard Medical School, Boston, Mass.

Noon Intermission

1:00 P. M.

Diagnostic Clinic: "Cancer of the Breast."

Dr. Frank E. Adair, Assistant Professor of Clinical Surgery, Cornell University Medical College, New York, New York.

Diagnostic Clinic: "Ascites."

Dr. Leroy H. Sloan, Professor of Medicine, University of Illinois College of Medicine, Chicago, Illinois.

Address: "Adrenal Tumors."

Dr. Waltman Walters, Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minnesota.

Intermission for Review of Exhibits

Address: "Prevention of Rickets with a Small, Single, Parenteral Administration of Vitamin D."

Dr. Henry J. Gerstenberger, Professor of Pediatrics, Western Reserve University School of Medicine, Cleveland, Ohio.

Address: "Head Injuries."

Dr. Eric Oldberg, Professor of Neurology and Neurological Surgery, University of Illinois School of Medicine, Chicago, Illinois.

Address: "Acute and Chronic Glomerulonephritis."

Dr. E. T. Bell, Professor of Pathology, University of Minnesota Medical School, Minneapolis, Minn.

REPORT OF THE NINETEENTH ANNUAL
MEETING OF THE WOMAN'S AUXILIARY
TO THE AMERICAN MEDICAL ASSO-
CIATION, HELD IN CLEVELAND,
OHIO, JUNE 2-6, 1941

The Women's Auxiliaries to the Cleveland Academy of Medicine and the Cuyahoga Medical Society and to the Ohio State Medical Association were hostesses to all the auxiliaries of the nation at the annual meeting of the Auxiliary to the American Medical Association and provided an entire week of social events. These included a luncheon for every day of the convention, three dinners, one reception for the retiring and incoming presidents, an airplane trip to view Cleveland and its environs, a sight-seeing and shopping trip, a flower show and as a climax a visit to the Cleveland Health Museum to view the volunteer work, the pride and joy of the Cleveland Auxiliary.

More than 1,000 delegates and visitors from 40 states were in attendance on the program which opened Sunday afternoon, June 1, and closed Friday afternoon, June 6. The program included the reports of the national officers and standing committees, election of officers and discussion of ways and means for auxiliary growth. In addition some eminent guest speakers addressed the Woman's Auxiliary.

Discussion waxed warm over the motion to increase the national dues from 25c to a dollar per member. The motion was lost by a vote of 2 to 1 against it. The need of a permanent secretary was discussed and the decision was to employ one. The choice of person and getting the necessary office equipment was left to a committee. The new secretary will be located in Chicago. This will enable the national board and officers to keep in touch with all the auxiliaries.

Among the guest speakers was Dr. Norman C. Yarian, whose avocation is collecting and photographing orchids of the United States. He showed pictures of many orchids and their habitat in his speech given at a dinner honoring the board of directors.

Miss Etta A. Creech, Family Health Association Director for Cleveland, gave a talk on the Tuesday morning program on "What Is Sound Health Education?" She stressed the need of extending the excellent work done in health education of children to the adults of our people.

On Tuesday afternoon Dr. Nathan B. Van Etten, retiring president of the A. M. A., talked on the problem of local health. For the slums, the source of pestilence, he declared the so-called good citizens are responsible, for they shirk from the unpleasant job of upsetting corrupt politicians. Also, Dr. Van Etten warned against surrendering the practice of medicine to government control. At the same meeting Dr. Morris Fishbein urged the need of informing our people on nutrition and advised that the A. M. A. Auxiliary could do much to stimulate an interest in the subject.

On Wednesday morning the guest speaker was Dr. Helen A. Hunscher, who also talked on "Nutrition-Food For Families." Dr. Hunscher is director of Home Economics at Western Reserve University.

On Wednesday morning at the installation of the new officers, the president, Mrs. R. E. Mosiman, stressed the need, in this time of National Defense, of holding to the aims of the Medical Auxiliary and proving a real aid in the work of the physicians.

Following the usual custom there was an exhibit of the work being done by the County, State and National Auxiliaries. The display was in the Aviation Room of the Hotel Carter. New York again made the best showing in diorames, the main features of the work. Illinois made her exhibit in the form of a big notebook that contained the programs and newspaper accounts and pictures of the Auxiliary work.

The high-lights of the convention were the addresses of the President-elect of the A. M. A., Dr. Frank Lahey, and of the Congressman Hatton W. Summers of Texas, chairman of the House Judiciary Committee of the U. S. House of Representatives, who talked on Wednesday afternoon. Dr. Lahey said in his address, "I prefer the uncertainties of the hazardous undertaking, frankly faced as hazardous and to accept them. It is my opinion that if disaster should overtake us . . . it would be no more terrible than what will happen to us if we try to isolate ourselves."

Mrs. Harry Otten,
President, Woman's Auxiliary to the
Illinois State Medical Society.

REFUSE TYPHOID INJECTION

ENGLEWOOD, Col.—When the Colorado Health Department ordered the 100 residents of Englewood to be inoculated for typhoid fever the citizens took the first injection and then refused the second.

"We don't need the serum," they told Las Animas County nurses who were ordered to make the injections following nine cases of typhoid fever.

At a mass meeting the townfolk voted against the second treatment.

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

I have just finished reading a book by Dr. Michael Davis entitled "America Organizes Medicine." This book reviews much of the material published on the need for medical care; the supply and the quality of the supply and the variations of demands and supply in various sections of the country; the incomes of doctors and dentists; the income of specialists; the expenses of doctors and dentists; the distribution of hospital accommodations; the cost for hospital accommodations; group hospitals and so forth.

Like most writers, medical expense and medical care is treated as though it were a separate and distinctive economic item away from, and apart from all other economic problems of the people. This has always seemed to me to be an erroneous method of approach because medical care is just one part of the actual necessities of life which all people must have. It cannot be cited as being particularly different from food, shelter, clothing and so forth. Dr. Davies assumes that it is a different type of necessity and sets forth that even though the earning capacity of a large number of the low income group was increased that this would not meet the problem. And it seems to be quite definite that he assumes the only solution of the problem is some form of Socialized Medicine under Federal and State Control. Many writers have set forth this same argument and have called attention to the distinct advantages that Socialized Medicine has brought to the people in the old world. Socialized Medicine was first inaugurated in Germany upon the theory that it would accomplish what Dr. Davis assumes that it would accomplish here. Conflicting opinions on these accomplishments have appeared for a number of years. We now know the situation in Germany and the present standard of medical education and medical care. Similar statements could also

be made regarding Russia and Italy. It brings back the fundamental question of whether a centralized form of government with constant increases in taxation, and the constant increase in government control of individuals, ever works out ultimately for the benefit of the people for which such legislation has been enacted. As a matter of fact, much of our legislation which is aimed at correcting evils brings about far greater evils than it hoped to cure; prohibition might be cited as one of these. When we consider that thousands of laws are being enacted by our various Townships, Counties, Cities, States and Federal Government annually to bring about some type of social reform; and that the passage of such laws adds to the number of people on the public payroll; and that the taxes collected for these various forms of social reform and the carrying out of these laws is constantly increasing; it seems obvious that if we are to continue such a policy that in the end we must bankrupt ourselves in an effort to legislate for many things which in most instances we as citizens should determine for and provide for ourselves. This is not only true in the field of medical economics but in all of our economic structure.

Medicine has made tremendous progress without being controlled by the Federal or State Government. The health of our people has been maintained even during the most trying times. It is not perfect, and it will not reach perfection in any given period of time because advancement should be perpetual. The assertions made that the medical profession are unmindful of the problems that confront them cannot be substantiated. Various surveys have been made by various medical organizations, including one recently made by the American Medical Association. These surveys were made to determine as near as possible the problem of medical needs and the

available source of supply for such needs in the entire field of medicine. A report of these surveys is at variants with surveys that have been made by some foundations and some social and reform workers. Furthermore, various groups, county medical societies and state societies have been carrying on various experiments in an effort to determine what is the most applicable way of meeting these problems. They have not jumped at the conclusion that they have the right solution, but believing that all new programs must be proven by experiment before they are finally accepted; they have approached the problem in a constructive way, we might say in a scientific way. We hope in the next few months to present in more detail in this column some of these various experiments which furnish actual data on the results obtained. This will give us a better idea of our approach to our own problems.

Dr. R. K. Packard, Chairman
Medical Economics Committee

ILLINOIS STATE MATERNAL WELFARE PROGRAM 1941 SUGGESTIONS FOR COUNTY MEDICAL SOCIETIES AND COUNTY CHAIRMEN

The Committee on Maternal Welfare of the Illinois State Medical Society feels that the adoption of the following suggestions by the County Medical Societies will lower the maternal and infant death rate within our State.

1. More emphasis should be placed on adequate prenatal care:
 - a. Monthly visits up to the seventh month, then every two weeks—history-physical examination, including pelvic measurements—weight and dietary instructions. Laboratory work consisting of urinalysis, Kahn, blood count, including red, white and hemoglobin, should be done, preferably on the first visit.
2. We recommend that each County Medical Society appoint a Maternal and Child Welfare Committee whose duties should consist of:
 - a. Investigate maternal, fetal and early infant deaths for constructive study in reducing mortality. Postmortems on neonatal deaths should be encouraged. This investigation to be carried out by the County Chairmen and other physicians appointed by local Medical Society; all information pertaining to this study to be kept in the

hands of the medical profession.

- b. Have an adequate number of programs on maternal welfare and pediatric subjects before local society and hospital groups to meet the need of that community.
- c. Encourage the educational programs among the nurses of that community by such means as moving pictures and special lectures and special invitations should be rendered to attend obstetrical and pediatric programs before medical groups.
- d. Encourage any improvement of local hospital facilities for better maternal care.
3. We suggest that the Chairman of the Maternal Welfare Committee be designated as the County Chairman and be responsible for the furthering of this program in his respective county with the cooperation of local Medical Society.

We suggest that he appoint a permanent Maternal Welfare Committee composed of lay and professional groups to further the program of lay education.

4. Encourage post-graduate work and refresher courses among the physicians.
5. We recommend consultation in all obstetrical complications.
6. Encourage programs on maternal welfare before the hospital staff.
7. We recommend that physicians stress the danger of abortions.

We are very anxious that every physician in the State, who is connected with the Maternal Welfare Committee in his county, attend the State Meeting to be held in Springfield, Sunday, September 21 at one o'clock P. M., to hear this program discussed in detail by the members of the State Committee.

T. B. Williamson, M.D., Chm.
J. F. Carey, M.D., Sec.

MEDICAL ADVISORY BOARD

The U. S. Director of Civilian Defense has appointed the following Medical Advisory Board to assist the Medical Division of the Office of Civilian Defense:

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Original Articles

ANOREXIA NERVOSA

R. F. FARQUHARSON, M.B., F.R.C.P. (C)*

TORONTO

It is common knowledge that there is often a sudden loss of appetite in response to acute emotional disturbance. This loss of appetite is but part of a general reaction which, varying greatly in different people, may also give rise to nausea and vomiting, diarrhoea, pallor, faintness, flushing, sweating, palpitation, smothering sensations and many other symptoms.

The effect of long continued worry and strain also varies greatly in different people according to their constitution. Not infrequently there is a physiological loss of appetite with resultant loss of weight which may progress to such a degree that the patient and the patient's friends begin to fear the presence of tuberculosis, hyperthyroidism, cancer or other serious disease. In most cases there is rapid improvement on relief of the obvious worry and strain. Sometimes, when it is impossible to relieve the strain, the patient is helped by understanding it and facing it with the realization that there is no serious underlying disease. These common types of moderate anorexia with loss of weight do not come within the scope of the title "anorexia nervosa."

Under the appellation "anorexia nervosa" is described a very different group of cases, fortunately less common, in which the loss of appetite is a morbid aversion to eating rather than a physiological loss of desire for food resulting from tension, worry or fatigue. The emotional reason for the aversion to eating, which

may amount to an obsession, often is concealed by the patient and seldom is obvious to her associates. The syndrome occurs chiefly in girls of a psychoneurotic constitution in the unstable period of adolescence and early adult life and less commonly in adolescent boys. It is probable that by constitution their unstable endocrine-autonomic regulation is unduly sensitive to emotional disturbance and loss of weight. As a result they come to present a peculiar picture characterized by marked emaciation, amenorrhoea, low temperature, slow pulse, low basal metabolic rate and, frequently, by low blood sugar values.

The syndrome, anorexia nervosa, was clearly described by Sir William Gull in 1873.¹ A photograph of one of his patients, before and after treatment, is reproduced in Figure 1. He pointed out that, following some emotional disturbance either avowed or concealed, the appetite fails and the intake of food becomes grossly insufficient leading to loss of weight. Commonly there are mild symptoms, such as uneasiness after food, epigastric distress or constipation, which provide a further excuse for the anorexia. Emaciation increases, and the health of the patient becomes an object of great concern to her family. Yet she remains quick, alert, active and restless and denies ill health until emaciated to a degree not seen in patients with organic disease still able to get about. "These wilful patients are often allowed to drift their way into a state of extreme exhaustion, when it might have been prevented by placing them under different moral conditions." When emaciation is at its greatest, weakness increases and oedema of the lower extremities may supervene. Amenorrhoea may appear early or only after considerable loss of weight has occurred. It constitutes a further source of concern to the patient and her mother. When the syndrome is well developed

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the temperature is often subnormal, the pulse rate and blood pressure low.

Figure 1



Photographed
April 21, 1887

Photographed
June 14, 1888

Anorexia Nervosa
Case Miss K.R., Age 14
Initial weight 63 lb.;
Height 64 inches.
Sir William Gull, Lancet 1888

In earlier days this picture was often mistaken for tuberculosis or other serious structural disease. In recent years it has been confused far more commonly with various endocrine disorders.^{2, 3} The ovaries, thyroid, adrenal and pituitary glands have all been blamed. In particular, it has been considered a form of severe pituitary insufficiency.⁴ Actually, however, there is no endocrine lesion⁵; the whole syndrome is a

constitutional reaction on the part of an unstable mechanism to a primary emotional disturbance. Reasons to support this belief will be presented in the discussion of some thirteen cases of anorexia nervosa that have come under my personal observation.

A brief outline of some of the striking findings in thirteen cases of anorexia nervosa at the time of greatest emaciation is given in Table I. Greater details of some eight of these cases have already been published.⁶ It will be noted that of these thirteen cases ten are females and three males, ages varying from thirteen to twenty-six years and averaging eighteen years. The average height of the whole group was 5 feet 3½ inches; average weight 81 pounds. Considering the girls only, the average height and weight, respectively, were 5 feet 2 inches and 76 pounds; age at onset of the disorder varied from twelve to twenty-four years. At the time of admission for treatment they were usually about one year older.

Type of Person Affected. Perhaps the most striking characteristic of all these patients is that they have a common type: they are people of a psychoneurotic constitution. Most of them are intelligent; all are highly sensitive. They tend to be impulsive, wilful, introspective and emotionally unstable. Lacking a sympathetic understanding of other people's problems, they tend to keep their own worries to themselves and to brood over them. Associated with a sense of

TABLE I
THIRTEEN CASES OF ANOREXIA NERVOSA (Toronto General Hospital)

CASE	SEX*	AGE	HT.	WT.	F.	SUGAR TOLERANCE				B.M.R.	B.P.	PULSE
						½H.	1H.	2H.	3H.			
						Mg. per 100 c.c.						
		Yr.		Lb.								
1. (E.L.)	F.	15	4'6"	59	71	82	80	64	61	—37	82/50	60-90
2. (D.K.)	F.	18	5'4"	72						—25	98/70	60
3. (R.V.)	M.	21	5'9"	101	89	97	104	67	64	—25	95/58	64-85
4. (D.G.)	M.	13	5'4"	75	76	100	103	120	91	—45	108/70	60-70
†5. (M.A.)	F.	16	5'5"	91	68	132	181	207	220	—28	95/60	50-60
					68	131	156	130	142			
6. (I.A.)	F.	25	5'1"	69	54	92	80	102	104	—32	74/56	70-90
7. (R.P.)	F.	21	5'5"	77	82	114	118	95	88	—26	104/70	
										—30	80/50	60-80
†8. (S.A.)	F.	26	5'1"	56	61	63	63	66				
					96	106	154		123			
9. (L.S.)	F.	18	5'6"	88	69	129	177	98	73	—36	85/60	50-70
10. (J.M.)	F.	13	5'4"	94	100	136	123	101	87	—20	85/50	50-60
11. (B.R.)	F.	19	5'3"	89							120/80	72
12. (F.J.)	F.	16	4'10"	65	64	96	63	86	83	—42	80/40	50-70
13. (F.O.)	M.	21	6'0"	120	85	65	62	55		—32	102/30	50-60

*All female patients had amenorrhoea.
†Sugar tolerance tests two weeks apart.
‡Sugar tolerance tests three weeks apart.

inferiority, they have a strong desire for prominence and dominance. Usually they are alert and optimistic but resentful of control on the part of their family. Prior to the onset of anorexia some of them were good mixers but later often they were seclusive. A number were aesthetic and artistic or imaginative in a mystical, unpractical way. Several had a pleasing personality. Most of them had a fixed, deep-seated stubbornness. In only two of the thirteen cases did we obtain a history of a psychotic trend dating from childhood.

Nature of Emotional Disturbance. In virtually all cases there was an underlying discontent as a result of failure of adaptation to their environment. In at least six cases unhappiness was increased by taunts of companions about a conspicuous obesity. In three cases a morbid concern about minor symptoms referable to the gastrointestinal tract seemed to give rise to a fixed fear of eating. One girl was homesick to an abnormal degree. A tall, sensitive boy, who stuttered, after the death of his mother was no longer able to put up with his father's constant chiding. Another youth could not adapt himself to city life and longed to return to the small farm where there was no room for him. In only one case did a therapeutic dietary restriction seem to be a factor in leading to the anorexia. In none was there evidence of organic disease which might have been responsible for the symptoms.

The Anorexia. As already stated, the anorexia was not a simple physiological lack of desire for food such as is characteristic of people working under too great strain or suffering from wasting diseases, but rather an actual morbid aversion to eating, a fanatical revulsion to the idea of consuming calories or taking much food into the stomach. It might be based on an abnormal desire to become thin, a desire to attract attention or gain sympathy, a fixed belief in the inability of the stomach to hold food or a fear of gastrointestinal symptoms. Whatever the emotional factor in the background, there resulted in all cases a peculiar, stubborn, fixed aversion to eating, an idea that dominated the patient's existence for the time. Some of these patients just refused to ingest any quantity of food but a good many studied food tables and avoided high caloric foods. One girl (Case 9) could not bear to see other people eating starches, cream, butter

or rich foods, for it appeared to her to be an indulgence of the flesh that was revolting, if not sinful. A thirteen year old boy (Case 4), who prayed that God would make him thin, helped on the process by depositing the food which his parents tried to make him take in a paper bag held between his knees. He would conceal the bag and throw it in the furnace. Later they found that he had smeared butter on the bottom of the dining room chairs. One patient (Case 8) (See Figure 2) would eat a meal and then go to the bathroom and induce vomiting to empty the stomach. Many of these patients stated later that the actual desire to eat had never been lost, but

Figure 2



Case 8 (S.A.), T.G.H.: Age 26; Weight 56 lb.

that the idea to avoid food had been stronger than the physiological hunger. It is evident that such morbid anorexia is a manifestation of a psychological disorder and not a physiological effect of a lesion in any endocrine gland or elsewhere in the body.

THE RESULTING SYNDROME

Emaciation. There is probably no other disease that gives rise to such a degree of emacia-

tion in people still able to get about. Even in patients suffering from fatal wasting disease, death often comes before emaciation is so severe. These young people, on the other hand, suffer from a slowly progressive self-induced starvation. Having no symptoms from structural disease, they remain quick, alert, active and restless till wasted to a shadow. Once the mental attitude has been corrected they quickly gain to a normal weight.

Because of the emaciation, in addition to amenorrhoea, low basal metabolic rate and low blood sugar, these active young people are often wrongly considered to suffer from Simmonds' disease, pituitary cachexia. In some cases of Simmonds' disease, wasting is very great but more commonly the patient is best described as thin, and sometimes is fairly well nourished. A comparison of the average age, height and weight of the thirteen cases listed in Table I, with fourteen cases of typical Simmonds' disease described in the literature and proven by autopsy is shown in Table II.

Amenorrhoea. All the female cases suffered from amenorrhoea. It was present usually before the anorexia became marked, and always before emaciation was extreme. In most cases the menstruation returned when improvement in nutrition and sense of well being became established. In some it recurred early; in others not for many months. One patient (Case 7) has been apparently well for three years, yet her menses have not returned. She is a little thin but looks and feels well and is active. In no case was amenorrhoea associated with loss of secondary sexual characteristics: the breasts remained fairly well developed in spite of emaciation and axillary and pubic hair persisted in all. There was no striking atrophy of external genitalia nor, as far as could be determined, was there atrophy of other sexual organs. In reporting his fatal case, Lockhart⁷ emphasized the fact that the breasts alone were not involved in the general wasting.

It is generally recognized that change of environment and emotional disturbance may give rise to amenorrhoea in apparently healthy young girls. Similarly amenorrhoea may be associated with many illnesses and with under-nutrition⁴ in the absence of any demonstrable endocrine lesion. In some girls the cycle appears to be

easily interrupted, but little is known of the mechanism by which this disturbance is brought about. The regulation of menses and other functions seems to be particularly imperfect in adolescence in the type of girl that suffers from anorexia nervosa.

Basal Metabolic Rate. The basal metabolic rate was reduced in all cases, the range being from -20 to -45 per cent. This reduction, however, may appear to be greater than it actually is because of the inadequacy of normal standards for emaciated adolescents. The lowering of the basal metabolic rate is comparable to that observed in undernutrition from other

TABLE II
COMPARISON OF AGE, HEIGHT AND WEIGHT IN
CASES OF ANOREXIA NERVOSA AND
SIMMONDS' DISEASE

	Anorexia Nervosa, T.G.H. 13 Cases (10F.; 3M.)	10 Cases (Female)	Simmonds' Disease (proven) (Literature and T.G.H.) 14 Female Cases
Age at onset (average)	17	17	34
Range of age	12-24	13-24	19-46
Height (average)	5'3½"	5'2"	5'2½"
Weight (average)	81 lb.	76 lb.	107 lb.

causes and would appear to be largely secondary to the emaciation. Unlike the lowered metabolic rate of myxoedema or other conditions such as Simmonds' disease, in which the rate is low because of underfunction of the thyroid gland, it is not influenced materially by administration of desiccated thyroid in moderate dosage. This is illustrated in Table III. With improvement in nutrition, however, the basal metabolic rate rises toward normal, but its rise does not necessarily run parallel to the gain in weight. (See Table IV).

Blood Sugar Level. The fasting blood sugar tended to be low. In four cases it was found to lie between 60 and 70 milligrams per 100 cubic centimetres, and in one case there was a single reading of 54 milligrams. In general, the depression in blood sugar level is not nearly so great as that frequently found in Simmonds' disease, Addison's disease, or hyperinsulinism, nor do the patients suffer symptoms of hypoglycaemia.

Blood sugar tolerance curves of two types were commonly found, both beginning with a low fasting blood sugar level. In one the curve

might gradually rise to a peak of between 170 and 220 milligrams per 100 cubic centimetres in two or three hours, a type seen in healthy people who have been starved or given a high fat diet for a few days⁸. The other remained low and flat, as seen in healthy people who have had a high carbohydrate diet, or in some patients with chronic undernutrition⁴. The two types might be found in the same patient within a short time. Since it was not possible to control the many factors that may alter the dextrose tolerance test, it seems wiser not to attach too much significance to variation in the curve. It would seem probable that variations in carbohydrate metabolism are secondary to chronic undernutrition⁹.

Temperature, Pulse and Blood Pressure. Temperature, pulse and blood pressure all tended to be low, although there was a good deal of variation from patient to patient. Sometimes

TABLE III EFFECT OF ADMINISTRATION OF DESICCATED THYROID IN CASE 5		
Date	Basal Metabolic Rate, %	
Sept. 6, 1934	—37	Desiccated thyroid, 1 gr. daily, Sept. 1933 to Sept. 24, 1934
Sept. 28, 1934 ...	—28	Receiving no thyroid
Nov. 5, 1934	—28	Receiving no thyroid
Jan. 5, 1935	—30	Desiccated thyroid, 1 gr. daily, Nov. 11, 1934 to March 1936
Jan. 26, 1935	—34	
May 6, 1936	—17	Receiving no thyroid
Mar. 17, 1938	—17	Receiving no thyroid

on excitement or exertion the pulse rate would rise from its usual level of 50 to 60 per minute to 90 or 100, or higher. With the general improvement that followed upon changed mental attitude and gain in weight, the temperaure, pulse and blood pressure all tended to rise to ordinary levels. (See Table IV).

Diet. The diet of these patients was always limited in total calories, but usually not grossly deficient in vitamins. When in hospital, the patients were given a good diet, in most cases without added vitamin concentrates. Those given added vitamins did not seem to improve any more rapidly than those given a good ordinary diet.

DIFFERENTIAL DIAGNOSIS

It has already been pointed out that the physiological loss of appetite and resultant loss of weight experienced by people undergoing periods of nervous strain and fatigue should not be considered as anorexia nervosa. Similarly, the lack of interest in food characteristic of states of mental depression or other psychotic disorders belongs to a different category.

Patients suffering from wasting diseases such as tuberculosis or tumours of various kinds, are usually quite ill, complain of weakness and fatigue and usually have obvious physical signs long before they reach the degree of emaciation seen in patients with anorexia nervosa. The latter patients are characteristically restless, alert and active, even when emaciation is extreme, and commonly they will not admit being ill although their relatives are alarmed. Moreover, they have a peculiar attitude toward food not seen in patients whose anorexia is due to structural disease.

Addison's disease is usually differentiated with ease by the characteristic weakness, pigmentation and crises of nausea and vomiting. In both conditions the blood pressure may be low. In Addison's disease there is no related fundamental psychological disturbance, anorexia is not a constant feature, and emaciation when present is usually a late symptom.

Because of the modern interest in endocrin-

TABLE IV
VARIATIONS IN B.M.R., BLOOD SUGAR AND PULSE RATE DURING RAPID GAIN
IN WEIGHT IN FOUR CASES OF ANOREXIA NERVOSA

CASE	DATE	AGE	HT.	WT. lb.	B.M.R.	FASTING B.S. mg. per cent	PULSE RATE
4 (D.G.)	31/1/34	13	5'4"	75	—45	76	60-70
	8/2/34			78	—35		76-80
	17/2/34			92	—27		80-90
	31/3/34			94	—29	75	70-80
	4/38			159	—8		
8 (S.A.)	20/7/39	26	5'10"	57	—30	61	60-80
	18/8/39			68	—9	96	76-80
	12/9/39			70	—10		76-86
12 (F.J.)	21/1/40	16	4'10"	65	—42	64	50-70
	15/3/40			75	—43	81	70-90
3 (R.V.)	12/33	21	5'9"	101	—25	80	80-90
	3/34			131	—10	110	80-90

ology in general, and in the pituitary gland in particular, many cases presenting the syndrome of anorexia nervosa have been diagnosed and reported in the literature as cases of Simmonds' disease (extreme insufficiency of the anterior lobe of the pituitary gland). Superficially, the syndromes closely resemble each other. In both are found emaciation, amenorrhoea, lowered basal metabolic rate, lowered blood sugar levels and changes in mental outlook. Actually, however, they are fundamentally different. Simmonds' disease occurs most commonly and most typically in adult women who have had several children and whose previous health has been good, the disease dating from the last puerperium, and the age at onset being much greater than that of cases of anorexia nervosa. The syndrome of anorexia nervosa develops characteristically in adolescents and young adults that have a psychoneurotic background. Precipitated by an emotional disturbance, it is cured by psychotherapy. The anorexia of Simmonds' disease is a physiological lack of desire for food; in anorexia nervosa it is a morbid aversion to eating. Emaciation in Simmonds' disease may be severe, but it is not constant. The average case of Simmonds' disease does not become nearly so wasted as do patients with anorexia nervosa in whom emaciation is a constant finding, unless the disease is recognized and treated before any marked loss of weight could occur. (See Table II).

The amenorrhoea of Simmonds' disease is associated with loss of sexual function, loss of secondary sexual characteristics, falling out of axillary and pubic hair and atrophy of the sexual organs. In anorexia nervosa, amenorrhoea occurs as a single symptom, important chiefly because of the concern it gives the patient and the patient's relatives, and not associated with evidence of gross failure of sexual function.

The basal metabolic rate in Simmonds' disease is usually lower than in anorexia nervosa. Being due largely to underfunction of the thyroid gland, it responds more readily to administration of small doses of desiccated thyroid than does the lowered rate of anorexia nervosa, which is secondary to emaciation. The blood sugar level is lower in Simmonds' disease and usually there is a moderate anaemia which is an unusual finding in anorexia nervosa.

The most striking difference, however, is in

the mental status. In Simmonds' disease the patient is dull and apathetic and shows intellectual impairment usually with gross changes in personality. In anorexia nervosa the patient is characteristically quick, alert, active and intelligent, often becoming wilful, sensitive, impulsive, hysterical and resentful.

In Simmonds' disease the anterior lobe of the pituitary gland is largely destroyed and there are secondary atrophic changes in other endocrine glands, viscera and skin. There are few reports of postmortem examination in cases of anorexia nervosa and the description of the endocrine glands in these is incomplete^{6,7,10,11}. The available data indicates that there is no characteristic change in the endocrine glands.

Improvement in cases of anorexia nervosa, reported as such or erroneously as instances of pituitary or other endocrine disease, has often been ascribed to the administration of such preparations as insulin, thyroid, various female sex hormones and pituitary preparations. Improvement occurring after endocrine therapy has often been regarded as evidence of the correctness of the diagnosis of a specific endocrine insufficiency. Actually the use of such preparations may be an effective, but not the most desirable, method of psychotherapy.

TREATMENT AND RESULTS

The aims of treatment are to change the attitude of the patient toward food so that emaciation will be relieved through the ingestion of an adequate diet and to ensure permanent recovery by eradication of the underlying mental conflict. The former can often be attained by change of environment, encouragement and suggestion, but if the second objective is to be realized the psychological basis must be discovered and remedied if possible. Patient, prolonged and repeated explanation (i.e. psychotherapy) is often necessary before the patient fully understands the nature of the illness and especially the effect that various environmental factors, past and present, have had on its development. This understanding is essential if the patient is to become properly adjusted to those disturbing associations in the daily environment from which there is no escape.

The first step is a careful and thorough investigation of the patient, best done in a hospital away from overly solicitous relatives and friends:

Only when the physician is absolutely sure of the diagnosis himself and convinced that there is no hidden serious underlying structural disease can he gain the patient's confidence and be in a position to reassure him adequately. The life history of the patient should be obtained, with particular emphasis on his emotional reactions to his associates. The factors at the basis of the neurosis are sometimes quickly revealed but often coöperation is imperfect and it is necessary to persevere in the search by questioning the relatives and friends.

Following the plan outlined above, our patients were assured with confidence that there was no organic basis for the symptoms. The relationship between emotional disturbances and the resulting change in function of the autonomic nervous system was carefully and patiently explained. The manner in which the stomach adjusts itself to gradual and persistent lessening of the food intake was described so that the patient's apprehension over the feelings of fulness which might occur when he tried to increase the intake could be easily allayed.

The patients were encouraged to eat, at frequent intervals, small but gradually increasing quantities of food of high caloric value. The caloric intake was carefully calculated daily, and praise and encouragement given with each increase that occurred. When about 3,000 calories was being taken daily and gain in weight was evident, the frequency of the meals was gradually lessened and the variety of food increased.

In some cases feeding by duodenal tube was given in the early stages of treatment but usually the method outlined was all that was required. Insulin to stimulate the appetite was not used. Similarly, nonspecific endocrine therapy was avoided, because it was considered that permanent results were more likely to be obtained if no artificial aids were employed.

During the patient's stay in the hospital every effort was made to divert his thoughts from his obsession. The public ward is obviously more effective than a private room for this purpose. Occupational therapy was of great assistance. In the workshop therapists endeavoured to introduce a spirit of friendly competition with other patients in some work or game. By this means a feeling of achievement was engendered which went far to restore the confidence these patients needed so badly and thus facilitated re-

covery.

Some of the patients appreciated the situation quickly, lost the aversion to food, began to eat, gained rapidly in weight and became well. In most cases, however, a period of a few weeks in hospital was required before the obsession about eating was changed. In three cases feeding by duodenal tube was used when other methods failed to stop the loss of weight. The confidence engendered by the gain of weight that followed upon the larger intake, and the improvement in sense of well being then aided in the psychotherapy and the tube feeding was discontinued. Once the patient learned to understand his or her problem and was willing to face it honestly the mental attitude towards food changed and recovery resulted. In general the younger patients responded most quickly. The older the patient and the longer the duration of symptoms, the more difficult the treatment.

Nine of the thirteen cases made a good recovery. One has married and had children. A tenth has felt well for three years but, as stated above, still does not menstruate. Two had mild psychotic trends. They gained in weight and were able to return to work. We subsequently lost touch with them. The other case (Case 8) improved greatly on second admission to hospital, but went home again too soon, against advice. After an initial slump on leaving hospital, she picked up again, gained weight and is now working, although still very thin.

SUMMARY

Thirteen cases of anorexia nervosa, described, present the typical syndrome of emaciation, amenorrhoea, low basal metabolic rate, low blood pressure, slow pulse and rather low blood sugar values.

These patients responded well to psychotherapy, i.e.: sympathetic understanding, patient repeated explanation till they understood their problem, reassurance and encouragement. Nine made a good recovery. One feels well, works regularly, but does not menstruate. Two with a mild psychotic trend gained weight and returned to work. One went home against advice, greatly improved but not well.

This syndrome develops as a result of a primary emotional conflict which leads to a morbid aversion to eating. It occurs usually in the unstable period of adolescence, often as a transient

phase, most commonly in intelligent girls whose emotional constitution and autonomic control are unstable.

There is no specific endocrine therapy for this condition, but these patients being of a hysterical nature will often respond temporarily to the suggestion that goes with confident administration of a special extract. Actually such treatment should be avoided because permanent results are more likely to be obtained if no artificial aids are employed.

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IN ENGLAND NOW

Has the doctor's cost of living risen since the war? Mine has not. The increase in income-tax and the rise in food and commodity prices have been offset by a reduction in household staff, in food expenditure, and in what my young brother when making out his weekly budget for my father's inspection used to include under "sports" — drink, tobacco, sweets, theatres, holidays, week-ends and clothes. Sherry, books and the children's education remain our only luxuries. The first will be taken from us, for the second there are always the libraries, for the third we shall fight to the last ditch.—*Correspondent in the Lancet, June 7, 1941.*

When a tyrant has disposed of foreign enemies by conquest or treaty, and there is nothing to fear from them, then he is always stirring up some war or other, in order that the people may require a leader. —*Plato's Republic.*

THE TREATMENT OF PSYCHIATRIC STATES FOLLOWING PREGNANCY

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Physicians are becoming increasingly aware of the prevalence and importance of personality disturbances following pregnancy. Though the etiology of post partum psychoses is still largely a matter of speculation and theory, two factors of great practical value have been established; namely, the *form* which the psychosis will take, and the *therapy* which has been so widely effective as to be classed almost as a specific.

ETIOLOGY

Incidence. The incidence of puerperal psychoses among female admissions to mental institutions accounts for from 5 to 10% of all cases.¹ Estimations of the incidence of post partum psychoses have varied all the way from 1 out of every 400 deliveries² to one out of every 1000³. This wide variation in estimation is accounted for in part by the fact that in many instances the personality disturbance is so slight as to be either disregarded entirely or dismissed as unimportant. If one takes the second ratio; i.e., 1:1000 and recalls that the general population psychoses occur in the proportion of about 1:1000 (85.4 per 100,000 in U. S.; 110 per 100,000 in Illinois)⁴, then an interesting inference can be drawn: *pregnancy is the precipitating and not the causative factor in puerperal psychosis*; and statistically speaking, one could say that subjected to any other stress of equal force and intensity as that offered by the pregnancy these patients would have developed an identical psychosis. (The word "identical" is used advisedly, inasmuch as the form of the psychosis is but an intensification of the basic, underlying pre-psychotic personality.) Or to state this fact in another way, one may say that each person who develops a post partum psychosis is psychotically predisposed.

The age of onset is essentially that of the child bearing period, the majority of cases occurring between the ages of 25 and 35. It is interesting

1. DeForest, H. P.: Complete pelvic obstruction due to fibromyomas as a cause of puerperal psychosis. Am. J. Obst., p. 276, 1918.

2. Ibid.

3. Williams, J. W.: Obstetrics, p. 993. D. Appleton and Co., 1917.

4. Patients in Mental Institutions, U. S. Dept. of Commerce, Bureau of the Census 1938, page 15.

to note that the number of pregnancies which a patient has experienced does not in itself seem to be significant; i.e., a psychosis is no more liable to occur after a first than after a second or third delivery, or vice versa.

The roles which *endocrine imbalance*, *infection*, and *heredity* may play as precipitating factors have not been clearly established. Usually the tests of toxicity are negative. Temperature, respiration, pulse, and leucocyte count are negative. Clinically, many of these patients appear to be somewhat confused and as if suffering from a mild and chronic delirium. Studies indicate that when the psychosis is of the toxic infectious nature, the hereditary background tends to be more stable than it is for those patients the form of whose psychosis is schizophrenic, manic depressive, or even psychoneurotic. Schizophrenic reactions are to be found most frequently in those patients whose pre-psychotic personality could be described as "introvert"; manic depressive, in those whose tendency was to be "extrovert."

The pre-psychotic personality of these patients is often stated to be normal, though a closer study usually reveals serious personality defects existent but dormant until released by the stress of pregnancy. Some patients give a history of chronic masturbation; some, of sexual frigidity. The latter fact is not particularly significant, inasmuch as the incidence of frigidity among "normal" married women is very high. Some patients, not having desired pregnancy are indifferent or hostile to the child; others maintain both desire for and love of the child but are overwhelmed by a sense of inadequacy and helplessness. In other words, here as everywhere else in medicine, each patient represents a highly individualized problem.

It may well be that the body has learned over a period of nine months to adjust to the marked change in endocrine function which accompanies pregnancy, and that the sudden change in endocrine activity brought about by the delivery of the child acts as a shock to the entire organism and particularly to the nervous system. Where the nervous system is predisposed or unstable, then such an endocrine change would precipitate a psychiatric disturbance.

THE FORM OF THE ILLNESS

There seems to be no consistent symptom complex for the psychiatric illness following pregnancy. Each mental disturbance varies with the individual patient. While most of the patients show evidences of anxiety and some confusion, as a rule they tend to fall into the usual psychiatric categories. Most of the disturbances may be classed under four headings: 1) Manic-depressive, 2) Schizophrenic, 3) Toxic-infectious, and 4) Psychoneurotic. The implication is, therefore, that the *form* of the patients' illness has been more or less predetermined before the patient became pregnant and that delivery acts as a precipitating factor to bring into overt existence an illness which had its roots in the preexisting personality. This statement is generally true in the psychoses; stress in the form of physical or mental shock will often produce a psychosis, but the form which this psychosis will take has been predetermined to a large extent in the patient's personality. In general paresis, for example, the etiologic agent is the spirocheta pallida; but the patient, in addition to showing the positive laboratory and neurologic findings, will show a personality reaction which may be euphoric (manic), or depressive, or hallucinatory and persecutory (schizophrenic) or disoriented (infectious). Any of these forms or types of psychiatric states may develop, their occurrence depending not upon the etiologic agent but upon the type of personality which existed before the illness began.

The post partum psychosis may be primarily schizophrenic in nature, as evidenced by withdrawal from reality, ideas of reference, delusions of persecution, hallucination, mutism, and cataplexy. The prepsychotic personality of these patients tends to be that of a shy, retiring person, who is overly moralistic, who is inclined to phantasy a great deal, who would rather be alone than with others. Often these persons are intelligent as far as learning ability or academic work is concerned, but appear to their friends as "inpractical." When a psychosis occurs in such a person, from whatever reason, the psychosis often, though by no means always, tends to be of schizophrenic nature. The following case is illustrative.

Mrs. E. O., age 31, was a shy, sensitive woman. She was one of four siblings, all of whom were of

the same temperament. She much preferred staying at home and reading to going out to parties or other social affairs. When she did go out, she was always a "wallflower," sitting by herself, and seldom entering into conversation. Moreover, she had always been extremely sensitive, and her "feelings" were easily hurt.

During her pregnancy, she was solicitously cared for by her husband and her relatives, the patient sitting quietly, pleasant but indifferent to the attention of those about her. The delivery was normal and there was no clinical or laboratory evidences of sepsis or other organic pathology. The patient, however, became increasingly quiet, with outbursts of irritability; she showed no interest in her child; she spoke very little, and had a "peculiar" stare in her eyes. This tendency was intensified as time passed, and she refused to eat, showed evidences of catatonia, and when she did speak, she expressed "crazy ideas"; she spoke of having teeth in her vagina, of strange men watching her through the windows of her room, of peculiar vibrations which were sent out to influence her mind. Her symptoms continued along this pattern so that the diagnosis was clearly that of catatonic schizophrenia.

The post partum psychosis may be primarily *manic* or *depressive* in character. In the manic phase, patients are over active, over talkative, and euphoric. They laugh, sing, joke, and are unmanageable. They jump in and out of bed, they talk constantly, and may have grandiose ideas. This phase may alternate with a depressive phase; or the depressive phase may come on alone. In the depressive phase, the patients cannot sleep or eat, are constipated, morbid, feel unworthy, and may attempt suicide. The pre-psychotic personality of these patients tends to be "extrovert," i.e., the patients are sociable, active, "good mixers," have many friends, are interested in several activities, and in general appear to be well adjusted persons. This type of personality infrequently develops a schizophrenic illness, and should there be sufficient predisposition within the nervous system will develop, under stress, into a manic- or a depressive illness. The following case is illustrative.

Mrs. B. B., age 29, was a happy, well adjusted person who had many friends, who was constantly active, and who not only kept house for her husband, but was gainfully employed, and engaged in a wide social activity. Pregnancy was desired and both she and her husband looked forward to their baby. Pregnancy was uneventful and although the patient was apprehensive before the child was born, the delivery was normal. Shortly after delivery, however, the patient became "blue" and worried. She wondered whether

she would be able to care properly for the baby, whether the expense of the hospital was too great, and about a myriad of details which previously had given her no concern. Physical examination revealed no pathology and there was no positive laboratory findings. Her anxiety and depression increased. Soon she had difficulty in concentrating, she began to sleep poorly, she had no appetite, she took care of the child but wept bitterly over an imagined inadequacy, she cried most of the time, was positive that she was a hopeless case, and that life was not worth living. She thought continuously of suicide. This patient suffered from a typical depression of the manic-depressive type.

The psychosis may be toxic infectious in form. In such instances, there is usually a definite evidence of toxicity, such as fever, leucocytosis, rapid pulse, and often a focal phenomenon of infection. In toxic-infectious states of acute nature, the symptoms are those of delirium; i.e., there is disorientation, the memory for recent and remote events is poor, the ability to calculate is impaired, and judgement is unsound. In addition there tend to be mild hallucinations, unsystematized delusions, anxiety, and restlessness. As a rule this form of psychosis disappears with the removal of the toxic-infectious etiology. This case of Mrs. L. G. A. is to the point.

Mrs. L. G. A., age 36, prima three, had an uneventful pregnancy. Delivery was normal, labor lasting seven hours. Following the delivery, the patient seemed normal; but on the second day her temperature began to rise, and she became disturbed and noisy. She was very apprehensive, and at times cried bitterly. She asked repeatedly where she was; did not remember the names of the nurses with whom she had previously been friendly; and was disoriented to the day and month, although she knew the year. She shouted out at times, and was kept in bed with difficulty. Apprehension was usually greatest in the evening, and at these times she would have vague illusions of persons passing through the room, and of constant noise outside her door.

The physical symptoms and signs indicated a diagnosis of post puerperal sepsis. The usual procedures were instituted, in addition to sulphanilamide. Morphine was used repeatedly as a sedative. By the end of the week, the fever had disappeared and all symptoms of delirium were gone.

Still another common form of psychiatric disturbance which follows pregnancy but which cannot properly be called a psychosis, is the psychoneurotic symptom complex. Patients with

this form of illness are irritable, emotionally unstable, and usually very hypochondriacal. Ordinarily there are many symptoms of tension.

Mrs. A. G., age 25, had always been a "nervous" girl. She had the usual number of friends, was graduated from high school, liked her boy friend a great deal and married him. She had always been subject to frequent headaches, "gas on her stomach," cried easily, "worried over every little thing that came up" and had frequently been treated by physicians for vague and annoying but intangible symptoms. She feared her pregnancy because of her belief in the stories told by some of her friends about the terrors of child birth. Her first child, however, proved not to be such an ordeal as she had expected; and she looked forward to her second child with much less apprehension. However, her husband had a reduction in wages, and his new position was insecure; her mother became ill and needed much attention, indeed the patient worried because the doctor had warned the mother of a possible cardiac collapse; and her first child was particularly subject to colds. These environmental stresses in addition to her own "natural" tendency to elaborate upon them, served to make her "very nervous." The delivery was normal; but soon thereafter the patient complained of weakness, of lack of ambition, of aches and pains throughout her body. The back of her neck hurt and there were radiating pains down her arms, inconstant in nature and without evidence of a peripheral neuritis. She cried easily, was easily hurt, and yet when guests came she was able to appear perfectly well. Her symptoms apparently were always worse when members of the family were present. She went from physician to physician but gained little relief. Her symptoms were always intensified just before her menstrual period. The diagnosis generally agreed upon was "neurasthenia."

TREATMENT

The treatment of psychiatric states following pregnancy may be divided into three main categories. The first is the removal of toxic-infectious processes where they are discernible. Herein are instituted the usual procedures of bed rest, forcing of fluids, dealing with the source of infection where possible, or the use of one of the sulphanilamide derivatives as the case warrants. The delirious state is dealt with by adequate nursing care, the use of frequent alcohol rubs for the fever reduction, and sufficient morphine during the initial stages to secure rest and sleep. The clearing up of the infectious process will usually result in the clearing up of the toxic-infectious psychosis.

The second form of treatment is that of convulsive shock therapy. (Metrazol or electric

shock therapy may be used.) When a psychosis develops and there is no evidence of any toxic infectious process, or should the infectious process be cleared up and the psychotic state persist, then the therapy which should be applied as quickly as possible is one of the shock therapies. Patients with psychoneurotic symptoms which suddenly flare up after pregnancy, as well as psychotic patients, should be treated this way. The results of such therapy are often amazingly rapid. In many instances two or three convulsive doses result in a permanent cure, while in others, longer courses of therapy are necessary. Delusions and hallucinations may remain, after the first few treatments, but the patient becomes infinitely more manageable and cooperative; and subsequent psychotherapy tends to result in the complete removal of the symptoms. Of nine patients treated with shock therapy, seven made a complete recovery after from four to ten treatments, given at the rate of three times a week. Of these seven, the average duration of the psychosis following pregnancy was from one week to four months. In the eighth case, a social recovery was obtained so that the patient was able to return to her home and care for her child, even though she continued to be easily upset emotionally by the ordinary events of the day. This patient had become acutely hallucinatory a week following her pregnancy and had climbed down the rain spout from her second story window because she wished to get to the police and inform them of the gang which was surrounding her house with the intent of killing her child. This woman had for several years been very suspicious of her husband, had been sure that the neighbors were spying upon her, and had avoided all social contacts for a long period of time. Following seven metrazol treatments the patient seemed well, and at her husband's insistence and because of his financial inability to keep the patient in the sanitarium any longer, she was sent home. At home she no longer manifested these bizarre ideas, but she remained emotionally labile.

The ninth patient made an excellent adjustment following ten metrazol treatments, except that for three days prior to, during, and for three days subsequent to her menses, she suffered from marked emotional instability and vague pains in the extremities. The use of testosterone propionate, mg. 10, a week before the

onset of each period, resulted in complete relief of these symptoms. After the fifth month, the testosterone was discontinued and the patient remained completely well.

The third important component in therapy is psychotherapy. This is particularly necessary when one finds that there have been previous manifestations of the basic instability of the patient's personality. All of these patients need to learn how to adjust to the problems of life, how to deal with their difficulties on an emotional level, and how to practice the ordinary rules of mental hygiene. Such psychotherapy is directed, not only at removing the instability that exists in relation to the post partum disturbance but also at preventing other neurotic disturbances from developing.

The prognosis of these puerperal psychiatric states varies with: a) the presence or absence of toxic-infectious factors, b) the amount of disturbance in the underlying personality before the pregnancy, c) the promptness with which shock therapy is instituted, and d) the adequacy of subsequent psychotherapy.

If the most important precipitating factor is one of toxin or infection, and the illness is in the nature of a delirium, then the prognosis for rather complete and immediate recovery is excellent. If, however, there is no discernible toxic element and if the patient's pre-psychotic personality has been very unstable, with elements of excessive introversion or extroversion, then the recovery from the post-partum psychosis will be similar to the recovery rate present in similar psychoses which seem to occur *sui generis*. Thus, for example, a patient who has always been shy, "queer," eccentric, and antisocial and who becomes pregnant, might have developed a psychosis even without the pregnancy; indeed one may say that in such instances the pregnancy was simply "the last straw," and without much etiologic significance. Recoveries from post partum psychoses in such patients may not occur, may be delayed, or may be incomplete.

Other things being equal, the sooner adequate shock therapy is instituted, the more certain are patients to recover from their psychosis. The results of treatment instituted several years after the onset of mental illness tend to be discouraging. Again, after recovery from the acute mental illness, many of these patients need a great deal of psychotherapy in order to readjust their

mental attitudes, and emotional instability.

As was stated earlier there seems to be no relation between the number of pregnancies a patient has and the onset of a post partum psychosis. The mental disturbance may occur after any one of the pregnancies, and may not recur after subsequent ones. Many patients have a post partum psychosis with one child and subsequently have several children after whose birth there is no evidence of mental aberrations. Whether a psychosis does recur or not depends upon basic personality states rather than upon the fact of the pregnancy.

SUMMARY

The post partum psychoses account for 5 to 10% of all psychoses among women, and occur in one out of every 400 to 1000 deliveries. As a rule there is no evidence of toxicity. The symptom complex of the psychoses varies with each person, the whole gamut of psychiatric illnesses being observed in these patients. The treatment consists of: 1) removal of infection, where present, 2) shock therapy to be followed by 3) psychotherapy. The shock therapy is extremely effective if given shortly after the advent of the illness. In those patients wherein the menstrual period is associated with emotional disturbance, testosterone propionate has been found useful.

The lamentable ignorance of the lay public is one of the greatest of the many factors which take their toll of the average patient suffering from consumption. In this country (England) we do not openly avoid the consumptive when we meet him in the street as is the reported custom in Cyprus; but social ostracism takes other forms. The consumptive finds it difficult to find employment, quite irrespective of the extent and nature of the disease. He has merely to let drop the information that he has had tuberculosis to find himself surrounded by a host of prejudices and fears, many of which are quite unwarrantable. He may have the spirit of willingness to work and his disease may be relatively benign, but the misguided trend of public opinion operates against him. He may be forced to take employment where and when it may be offered, regardless of its suitability, and knowing full well that he may have to pay the penalty in the course of time. If he is a victim of social eviction the relapse will probably come even more speedily because of the absence of work which is his means of providing himself and his dependents with bread and butter, which mean life itself.—J. B. McDougall, M. D., Bull. de l'Union Inter. Contre la Tuber., July, 1939.

ARE PRESENT DAY QUARANTINE METHODS ARCHAIC?

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Quarantine and isolation are terms that are often used synonymously. In either instance there is a restriction on the movements of one or more individuals for the purpose of protecting the public health. But in this discussion a sharp distinction is to be made between the quarantine of premises and the isolation of patients in the home. Moreover, there seems to be a tendency to apply the term quarantine especially to those communicable diseases where the enforcement of definite sanitary regulations are essential.

Quarantine of contagious patients as practiced for many years might be regarded somewhat as an ancient custom. Quarantine dates back, at least, to the second half of the fourteenth century. At that time it applied to ships and was instituted by the Italians for the purpose of shutting out pestilence from the East. Venice in 1403 was said to have been the first city to establish a maritime quarantine. The measures then adopted were the foundation for the laws now in force to prevent the spread of contagious diseases by ships from one country to another. However, the control of ships' movements and the limitation of freedom for those who live in homes present many dissimilar problems. Therefore, requirements which are adequate for the one may not be appropriate for the other.

The adoption of any quarantine regulation can only be justified if its objectives are attained. Success must be based on evidence that the spread of the particular disease has been checked. Failure is apparent if the number of people contracting the infection is not notably influenced by the restraining rules applied. There is little to indicate that any marked suppression of certain diseases has been accomplished by the quarantine rules that have been in existence in some states for a great many years.

Measles is an outstanding example of failure to control an epidemic disease by means of home quarantine in large cities. From 1856 until 1940 there has been an epidemic of measles every two years in the city of London. Even hospitalization

of measles patients in large numbers has not succeeded in lessening the spread of this disease. This was illustrated in London when during a period of eight months from October, 1935, to July, 1936, 13,667 measles patients were sent to the infectious disease hospitals. The total number of measles patients in the year this was done amounted to about 40,000. However, the Ministry of Health reported that there was no thought of controlling the outbreak but that the patients were hospitalized on account of the care that they required. In Chicago, an outbreak of measles develops nearly every other year. Sometimes an epidemic may be followed by one of lesser dimensions in the succeeding year, then a year of very low prevalence ensues and precedes the next major outbreak. It would seem ideal if susceptible contacts could be isolated prior to the onset of measles but after the disease has developed and the eruption appeared there is little likelihood of others being unknowingly exposed to the patient. We mentioned the regularity with which biennial epidemics of measles have occurred in London; therefore, it is interesting to learn that the scheduled epidemic for 1940 did not occur. This seems particularly strange considering that 730,000 children were removed from cities to country districts early in the fall of 1939, and about 87 per cent had returned to their homes by January, 1940. While absent from their customary places of abode they were deprived of the usual advantages of school inspection and yet the number of common contagious diseases in England was less in 1940 than it was in 1939. In 1938, Chicago had approximately 38,000 cases of measles reported. As a result, the supply of susceptibles was largely exhausted by 1939. But with the coming of 1940 more children had reached the measles age and, therefore, the infection was much more prevalent than in the preceding year. Repetitions of a similar nature are noted in most cities throughout the years, and suggest the futility of attempted control by means of quarantine measures. Placarding of the measles patient's home is of no scientific value and indirectly may do harm; for the parents dreading the posting of a red quarantine sign hesitate to call a physician at a time when medical attention often is most needed and can accomplish the greatest good. Therefore, it was refreshing to learn during the

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past year that the State of Illinois rescinded an old time requirement in respect to placarding for measles.

Scarlet fever is another disease which has shown no tendency to be suppressed by means of quarantine measures. In some respects it presents one of the most difficult problems among all the common contagious diseases from a public health standpoint. Unlike measles, it does not occur in frequent waves of high and low incidence but maintains a comparatively even level of prevalence from year to year. Again quoting from reports of the Ministry of Health, it is mentioned that from 85 per cent to 95 per cent of scarlet fever patients are treated in hospitals in London and in thirty-six large cities, but "the incidence of the disease in the country generally appears to show no marked reduction as the result of hospital isolation or indeed of any other measure of public control." An explanation for this condition in our own state as elsewhere is probably the presence of scarlet fever carriers of nearly all ages who may be present during all seasons of the year and at all times mingling with those who are apparently well. This is constantly true with respect to immune carriers and it must also occur to a marked degree among convalescent carriers who have been arbitrarily quarantined in accordance with public health regulations for a period of twenty-eight days. For many years in this state, the quarantine rules applied to the home of a scarlet fever patient imposed great hardships on the family. Sometimes this included expenses which could not well be afforded. Thus the wage earner was compelled to find other lodgings if he were to continue to pursue his customary means of livelihood. Otherwise he was obliged to remain on the premises and, as a result, might be deprived of his income through loss of work. It is cheering to note that now there is a general tendency to give more consideration to the economic aspects of quarantine. The effort to do so is thoroughly justified because there is little to suggest that the past rules governing scarlet fever patients in their homes have accomplished much in diminishing the incidence of the disease. The regulations now in force which permit the coming and going of the wage earner under certain conditions are entirely within reason. For at least fourteen years the English have permitted

adults who were not food handlers, teachers, or others engaged in occupations requiring contact with children, freedom of movement when scarlet fever patients were isolated in the home. Placarding for scarlet fever as a warning for others may be a proper requirement. However, the city of Bergen, which had until the time of the present war a population of 90,000 people did not placard the homes of scarlet fever patients and, apparently, achieved as much control over the disease as has been accomplished in cities of comparable size in this country. This fact further stimulates consideration as to whether or not hospitalization for scarlet fever patients should not be limited to those for whom hospital treatment is necessary; and perhaps a limited number who cannot be given proper care at home on account of the lack of financial resources that are essential.

From the standpoint of control, it is very doubtful if the placarding and quarantining of premises for poliomyelitis, whooping cough or chicken pox really accomplishes any good. This statement is upheld to a considerable extent by the fact there are wide variations in the quarantine regulations throughout the many states. This, of course, is due to the differences of opinion in the communities concerned. If minimum quarantine periods have accomplished as much in some states as maximum requirements have in others, then it is apparent that regulations in the latter are unjust. A situation of this kind suggests that an extensive study of the entire matter should be made in order that uniform quarantine laws could be adopted throughout the nation. Some years ago a committee of the American Public Health Association put forth some efforts in this direction. Again referring to poliomyelitis, we are all aware how seldom more than one case of the disease is diagnosed in the same family. A similar situation holds true in respect to meningococcic meningitis. We apply sometimes rules of quarantine without having a full knowledge of any actual good that such rules may possess.

None of the foregoing remarks are intended to belittle the necessity for the proper isolation of a communicable disease. Momentarily it would seem that the ideal procedure might be to care for all contagious disease patients in special hospitals. However, such an undertaking would

scarcely be possible in a large city. As previously intimated, it was the aim for many years in London to treat most contagious disease patients in fever hospitals in order that the sources of infection could be removed from contact with the general public. However, this effort at control did not meet with success. Nor is it likely that any large city can control extensive epidemics in such a manner. Carriers of infection will always be at large and cannot in all instances be identified. Inasmuch as it is either not possible or not feasible to undertake the hospitalization of all contagious disease patients, many must be cared for in their homes. Moreover, this can be satisfactorily done if proper isolation measures are enforced and these can be more readily carried out if the restrictions placed about the family are reasonable.

The application of isolation procedures are far older than any quarantine laws. This is realized at once when we consider that Moses recognized the value of separating the sick from the well. The necessity for isolation of communicable disease patients is as important now as in biblical times. Theoretically, the contagious disease patient should be segregated for the duration of his infectivity. Practically this period can not always be determined and even if known, proper enforcement of isolation requirements may not be possible. As suggested previously, contagious diseases are transmitted with far greater frequency by carriers of infection than as a result of contact with one suffering from disease. With the ever increasing dissemination of knowledge among the laity with respect to public health matters, communities of today appreciate and understand the value and necessity for isolation of patients with infectious diseases. On that account the average contagious disease patient without complications may be satisfactorily cared for in the home without serious danger of transmitting infection to others provided approved measures of procedure are adopted. In the future, perhaps contagious disease hospitals will be used primarily for two purposes: (1) for those patients who absolutely require hospital care on account of the seriousness of their illness, and (2) for patients whose disease is of such a nature that strict quarantine is absolutely essential. Aside from these two classifications all of the other common contagious disease patients may perhaps be cared for in their homes by

means of isolation without danger to the community at large and without emblazoned signs on their homes to proclaim their misfortune.

Not only have many needless requirements been applied to the living but sometimes useless restrictions have been imposed upon the bodies of the dead. Why must a family in sorrow be denied the right to hold a funeral as they wish it following the loss of a child from whooping cough. Furthermore, is it necessary to apply similar restrictions when death has occurred from measles, poliomyelitis, or epidemic meningitis. How much evidence is there to show that the body of an individual who has died from any one of those diseases has ever been responsible for transmitting the infection in question. The corpse of the influenzal, pneumonia or tuberculous patient would hardly be less dangerous, but the same could not be said for smallpox, plague or glanders. Satisfactory control of the common contagious diseases must depend for the most part on neither quarantine nor isolation, regardless of whether such measures are carried out in the home or in the hospital. The only certain method for the suppression of a contagious disease is the application of an efficient immunizing agent. Vaccination against smallpox is the outstanding example in this field of endeavor. If all the world were vaccinated smallpox would soon become extinct. We can scarcely hope for such an achievement. Nevertheless, in a small community or even in a large city 90 per cent of the population could easily be protected if proper vaccination laws were on the statute books. In the last war during a period of three years from 1917 to 1919, there were 853 cases of smallpox among our troops in this country and abroad, and among that number 114 deaths. Regardless of any quarantine or isolation measures adopted, smallpox would have run rife as it did in pre-vaccination times had not the vast majority of troops been protected by successful vaccination. The value of diphtheria immunization closely follows that of vaccination against small pox. Comparatively few of the diphtheria patients entering our contagious disease hospitals give any history of exposure to the disease. In 1921, 2,165 diphtheria patients were admitted to Municipal Contagious Disease Hospital. After an intensive campaign of active immunization carried out by the Chicago Health Department

there were but 96 diphtheria patients received in the same hospital in 1933. Neither quarantine nor isolation could accomplish such results, nor was there any marked suppression of diphtheria until active immunization was introduced. Typhoid fever is another striking example of the value of active immunization. Provisions for the prevention of tetanus, scarlet fever, and whooping cough may in time join the ranks on a par with some of the other methods formerly mentioned as defenders against infection and death.

But it is not merely necessary to possess efficient weapons for defense against disease but to have available a large corps of trained workers capable of using them. Epidemiologists, diagnosticians, health officers and public health nurses, each group in sufficient number are required to study sources of infection, determine the exact nature of the disease, immunize contacts, and follow up cases or suspected cases. Questions of sanitation must also receive attention and for this purpose properly trained engineers are essential.

CONCLUSIONS

1. The usual quarantine regulations for the control of the common contagious diseases have been an utter failure.

2. Contagious disease patients and susceptible contacts should be isolated.

3. In most instances, placarding of premises has no scientific value if the family concerned possesses average intelligence, and if the home is visited at proper intervals by a field nurse or health officer.

4. Infectious disease hospitals should be maintained primarily for those patients who require hospital treatment.

5. Satisfactory control of the common contagious diseases is only possible in those infections for which an efficient immunizing agent is available.

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DISCUSSION

Dr. Winston H. Tucker, Evanston: I am sure that we all agree with Dr. Hoyne on the established principle that previous immunization against preventable disease is the most satisfactory means of communicable disease control. These preventive measures have been most satisfactory in control of smallpox and diphtheria. I do not quite agree with Dr. Hoyne that quarantine and isolation measures required by the State Department of Health have been of little avail in the control of other communicable diseases, particularly scarlet fever. In my experience, quarantine measures have been very helpful as an aid in communicable disease control.

May I again remind you of the difference between isolation and quarantine. Isolation pertains to the patient only; it means complete isolation from everyone except the immediate attendant and the physician. On the other hand, quarantine applies to the other members of the family, requiring either complete or partial restriction of their movements to and from the household. Premises in which a person is ill with a communicable disease are placarded for the purpose of notifying the public that a communicable disease exists therein, and entrance to those premises is prohibited. In communicable disease control, it is important that the attending physician or public health nurse explain the meaning of isolation and quarantine to the family, in order that they may cooperate in an intelligent manner in protecting the patient and the public.

As you know, measles is the most highly communicable disease which affects mankind. Quarantine measures have done little to alter periodic measles epidemics throughout the years. Nevertheless, placarding of premises harboring cases of measles have played an important part in reduction of complications which are caused by hemolytic streptococci, staphylococci and pneumococci brought to the sick child by visitors. We all know that the measles patient is very susceptible to secondary infection. I am not so sure that the State Department of Health has been wise in discontinuance of placarding of measles. It is my opinion that measles is a serious disease of childhood and placarding is warranted because it aids in prevention of complications. Discontinuance of measles placarding has made the public think that it is not important to isolate and protect the measles patient from other people. Further, it is my feeling that local health departments could do much more health education of parents in connection with proper protection of the measles patient.

Placarding in chicken pox is important as a means

of smallpox prevention. We carefully check every case of chicken pox in persons over 16 years, in order to be certain that it is not smallpox. In communities with a high percentage of vaccination against smallpox, I think it would be wiser to discontinue placarding for chicken pox and continue placarding for measles.

In connection with quarantine for scarlet fever, Dr. Hoyne mentioned the possibility of members of the family going in and out of quarantined premises after dark. No doubt a certain number of people will violate quarantine in this manner, but I do not think that an occasional violation should cause us to give up placarding entirely for scarlet fever. Scarlet fever cases can be adequately handled in the home, and the public protected, if strict isolation and quarantine measures are followed. The recent modification of the rules for scarlet fever control by the State Department of Health which permit wage earners to go to and from the placarded home for the purpose of earning a living is a good one. However, it must be emphasized that foodhandlers and persons who come in contact with children are not permitted these measures of modified scarlet fever quarantine. It is essential that the patient be strictly isolated from the wage earners, and that the wage earner cooperate completely in the modified quarantine.

It is my belief that the day is not far distant when it will be possible to control scarlet fever by active immunization, as is now accomplished for diphtheria and smallpox. The present method in which five increasing doses of scarlet fever toxin is administered at weekly intervals has been very satisfactory in my experience. Objection to this procedure by physicians because of severe reactions following injections can be largely overcome by being certain that the injection is made subcutaneously rather than intermuscularly. Rapid absorption from intermuscular injections is most often the cause of local and systemic reactions.

In our communicable disease control program, all scarlet fever patients are cultured for hemolytic streptococci, and growth on the blood agar plate is classified as heavy, moderate and light. At the end of the 28 day quarantine period, convalescents with positive cultures are placed under modified quarantine, and school attendance and other outside activity prohibited until throat cultures show very few or no hemolytic streptococci. We have found that most convalescents have negative cultures from 6 to 8 weeks after the date of onset. Those who continue to show heavy positive cultures have been found to have a focus of infection, generally in the tonsils. Brothers and sisters of scarlet fever patients who receive free hospitalization are Dick tested while the patient is in the hospital, and active immunization is begun at once on those who are Dick positive. Accordingly, when the convalescent returns from the hospital with a positive throat culture, the other children in the family are protected. In this manner we have suc-

ceeded in substantially reducing the number of secondary cases of scarlet fever.

In summarizing I wish to repeat that it is my opinion that quarantine and placarding have made a definite contribution to communicable disease control. It is not wise to enforce quarantine regulations in a dogmatic manner nor is it wise to be lax and careless. We have found that firm enforcement of quarantine, combined with a program of health education of the patient and parent by the physician and public health nurse have been effective in communicable disease control.

Dr. C. P. White, Kewanee: I am a general practitioner and President of the Board of Health in Kewanee, Illinois. I believe that our record is as good as you will find in the average community of that size. We do not have the opportunity to have a free laboratory to do our culture work, as Dr. Tucker has, without sending it to the State Laboratory.

I appreciate very much what Dr. Hoyne has just said. After nearly eight years I am of the opinion that there is a great deal more in the control of these communicable diseases and in the isolation of the patient and the attendant than there is in the old quarantine as it has been practiced. However, if we are going to get that kind of control we want, it seems to me that we are going to have to make sure that we have the full cooperation of the medical men in the community. In our city, every doctor understands that we consider his office a health center and he is given privileges, is respected in his diagnoses, and is given the cooperation of the Health Department. If we find in any instance that he does not cooperate, then those privileges are taken away from him.

However, I am serious in the matter of scarlet fever. I believe there are many of these streptococcus sore throats where under observation no one has ever seen them accompanied by a rash. When I speak of these sore throats, I mean a true streptococcus sore throat with high fever, general malaise, and all that goes with it. Many of these are transferred from one to another in a family or neighborhood and you will have a scarlet fever desquamation following in many instances. The question is, *just when is fever not scarlet fever*. We have had five such cases reported in the last three months. One such case was in the hospital in the delivery room. There were three more that followed inside of four days before we were able to get hold of things and clean them up in that hospital. The patients had private rooms and private nurses and men whom I considered to be good doctors saw those patients daily and sometimes twice a day. There never was a rash on this one patient who was first ill following delivery, although she had a very serious sore throat and a very high fever — 104° to 105°. Three weeks afterwards she apparently was well and was put on general floor care on another floor of the hospital. Understand, there never had been any question in the minds of

the men taking care of her that she had scarlet fever or anything similar to a rash. However, five days after she had been put on floor duty, the three nurses who were taking care of her had typical cases of scarlet fever. (Incidentally, two of these nurses had had negative Dick tests.)

Some say that the true time for contagion is during the acute stage. This happened after or during desquamation. Those things are happening, and I believe Dr. Gunderson has a letter at the present time from Dr. Levinson on just this question. What should we do?

I believe that if we men in this health work are going to control scarlet fever, it is important that we have true isolation, cultures of the throat, and observation of the patient until we can be sure that streptococcus sore throat, or that strain of streptococcus, is not the kind that is going to create scarlet fever, either in that patient or those with whom he comes in contact. It may not show in one culture, but when it is transferred you may get it. If that is true, and if we are going to control these cases, then I think there is some sense to a more stringent isolation and observation of that type of patient.

Dr. Sandor Horwitz, Peoria: Earliest quarantine known to civilized man are those recorded in the Old Testament. Chapters thirteen, fourteen and fifteen in Leviticus, the third Book of Moses, gives an interesting and detailed account of how quarantine should be regulated and enforced. The quarantine rules and regulations described in those chapters compare favorably well with those of the present day. The priests, who were known to be well informed in the art of healing of those days, were designated as Health Inspectors. It was their duty to see that the people under quarantine strictly adhere to those rules and regulations. Leprosy, as mentioned in the Bible, is really a generic term of various kinds of eruptive diseases and it is not in the sense that we understand leprosy today. A quarantine was never lifted until the priest, in his capacity as Health Inspector, was satisfied that all evidence of the lesion had disappeared.

Miriam, the sister of Moses, was isolated on account of an eruptive disease which is mentioned in the Bible as leprosy, and the children of Israel were unable to continue on their journey for fourteen days while Miriam was in isolation.

Dr. Archibald Hoyne, Chicago. Conclusion: It is not hard to understand the opposing points of view that are taken in some of these matters. Of course Dr. Tucker, for example, comes from a law abiding community. In a city the size of Chicago it is more difficult to enforce quarantine regulations.

Theoretically it would be ideal to terminate scarlet fever quarantine by cultural procedures. Some years ago such a plan was tried at Municipal Contagious Disease Hospital. Practically the undertaking was not a success from the hospital viewpoint. Within a short time a large proportion of the hospital beds were occupied by scarlet fever carriers. These patients though apparently well could not be released until

negative cultures for hemolytic streptococci were obtained from the nose and throat. In the meanwhile there was an insufficient number of beds for the admission of acutely ill patients, who required hospital care. This is a further illustration of the perplexing problems which are presented when any serious effort to control scarlet fever is contemplated.

The question concerning the nurse with the negative Dick test contracting scarlet fever brings us back to the problem "What is scarlet fever?" Sometimes, it seems perhaps we do not know. Student nurses at Municipal Contagious Disease Hospital are required to have negative Dick tests before going on duty. Some years we have had as high as 19% of these student nurses acquire streptococcic sore throats while taking care of scarlet fever patients. A number of such students developed cervical adenitis, a few had otitis media and on one or two occasions mastoiditis developed. But none of these nurses was diagnosed as scarlet fever because none had a rash. It is unthinkable that everyone with hemolytic streptococci in the throat or nose can be isolated. Nevertheless it is chiefly scarlet fever carriers who are responsible for the spread of the disease.

USE OF SECONAL (Sodium propyl-methyl-carbonyl allyl barbiturate) IN PEDIATRIC PROCEDURES

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There has long been a need in medical practice for some method by which painful procedures could be facilitated in young children without the psychic trauma which so frequently accompanies even routine examinations in pediatric practice. Furthermore, there are certain children upon whom nonpainful procedures such as examination of the ears, nose, or throat, or palpation of the abdomen for masses and organs, cannot be carried out due to the fear which the child has acquired through previous contact with physicians.

The remedy for this dilemma is, obviously, the use of some analgesic or anesthetic drug. Local anesthesia is unsatisfactory since the child's cooperation, which is necessary for its use, can seldom be obtained. General anesthesia has many disadvantages, which are apparent to any physician who has employed it in the home or office. Many other drugs have been tried and the barbiturates, in one form or another,

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have found favor with most physicians. Among these barbiturates, seconal (Sodium propylmethyl-carbinyll allyl barbiturate) administered rectally has been found to be satisfactory.

Lyman¹ reports excellent results with the use of seconal in otolaryngological procedures. He has used the drug in conjunction with local or general anesthesia in doses varying from 0.75 gr. to 3 gr. (rectally) in children and has found it superior to other barbiturates for this purpose. Kempf² has used the drug extensively with excellent results. Walker, Peters and Hiebert³ report the successful use of 1.5 and 3.0 grain doses, orally, for minor surgical procedures in children.

Seconal, administered rectally, has several advantages over most barbiturates. The period intervening between its administration and its effect is somewhat shorter than for similar compounds^{4,5}. Furthermore, although the duration of its action is generally shorter than for other barbiturates, recovery from its effect takes place more quickly than with comparable drugs^{4,5,6,7}. It comes closer to the true anesthetic level than other analgesics, except those given intravenously, and has a greater therapeutic index (2.25) as calculated by oral administration in dogs, than the four common soluble barbiturates, — sodium amytal (1.78), sodium pentobarbital (1.70), sodium phenobarbital (1.67), and sodium barbital (1.70)⁴, and therefore is safer to use in larger doses. It differs from barbital and phenobarbital in being detoxified and oxidized within the body rather than excreted in the urine⁷.

No dangerous side effects have been noted with Seconal per rectum although there is a consistent fall in the systolic and diastolic blood pressure of from ten to twenty millimeters of mercury. There is also a slight rise in the pulse rate. We have failed to observe the decrease in rate of respiration reported by Kempf². Seconal has been used in patients manifesting pathology of the central nervous system, cardiovascular system, and genitourinary system without untoward effect and is apparently safe to use in moderate quantities on any child.

When the drug is to be used for relatively nonpainful procedures, such as examination of an unruly child, the dose advised is 1/20 grain (0.003 grams) per pound body weight. The child usually is asleep within thirty to forty-five

minutes and awake at the end of one to two hours. For painful procedures, such as paracentesis, phlebotomies, spinal punctures, etc., twice the amount is used, 1/10 grain (0.006 grams) per pound body weight. With the latter dose the maximum degree of analgesia is obtained in 30 to 60 minutes but the action of the drug may persist for several hours. It is not advisable to use more than six grains (0.36 grams), rectally, in children.

The rectal administration of the drug is preferred because of the relatively short period of time required to reach the sub-anesthetic level. The drug is removed from the capsule, dissolved in 5 c.c. of water and injected with a rectal catheter. About 2 to 3 c.c. of water is run through the system to be certain that the patient gets the full dose. The buttocks are then taped together to prevent the expulsion of the drug. We have not made a practice of giving an enema before administering the drug since such a procedure would reduce its value in the office or the home. Occasional failures with the use of Seconal, however, may be due to the presence of a large quantity of stool in the rectum. Recently, rectal suppositories of Seconal have been placed on the market and have been tried in a few cases. It has been found that larger doses of the drug are necessary, if used in this form, and that the interval between the administration of the drug and its effect is greatly increased.

We have not encountered any condition which would contraindicate the use of Seconal per rectum. However, due to the fact that the drug is oxidized within the body, its use in patients in whom the process of oxidation has been reduced may result in a prolongation of the period of analgesia. It is therefore advisable to reduce the dosage of the drug in patients with marked anemia, methemoglobinemia, pneumonia, etc.

Our experiences with the rectal administration of seconal have been gratifying, especially when used in procedures where pain is not a dominating symptom: — x-ray examinations, examinations of the ears, nose and throat, examination of the abdomen, hypodermic and intravenous injections, spinal punctures, sternal punctures, rectal examinations, etc. It must be remembered, however, that the level of true anesthesia is not produced by the dosage of Seconal recommended above; therefore, if minor surgical procedures, such as incision and drain-

age of an abscess, encephalographic studies, surgical biopsies, etc., are to be carried out with rectal Seconal alone the results will be disappointing. The use of local anesthesia as an adjuvant to the seconal is therefore advised.

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SURGICAL MANAGEMENT OF URETERAL STONE

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Seldom do we witness an acute medical or surgical entity as intriguing in its symptomatology or as momentous in its consequence as is the problem of ureteral calculus; rightly could it be classified as the enigma of medical miseries. Long have we known and willingly accepted the maze of interesting uncertainties attending the correct rationale of stone management, however, the social and economic phase is also important in many cases and must be intelligently considered. Patients of the laboring classes with non-progressive ureteral stone must of necessity be treated surgically to expedite matters so that they may hurriedly return to gainful occupations. Whereas, others in higher brackets in sedentary pursuits, time is not such an all important factor and watchful waiting with certain reservations is advisable. We feel that any decision on surgical intervention requires a wealth of matured judgement and experience, and a thorough knowledge and extent of the menace to the renal integrity.

We feel that it is generally known that in most cases the symptoms characteristic of ureteral stone are quite obvious, nevertheless, this syndrome is not always dependable as all have been frequently misled on its correct interpretation. Ureteral stone behavior may and frequently does mimic a wide variety of visceral and skeletal lesions, and a trustworthy diagno-

sis is only made through the medium of ureterography, cystoscopy and opaque catheters.

Many cases of impacted ureteral stones are uncovered during the course of a general examination, totally devoid of symptoms, yet for the future well-being of the patient and to preserve the renal structure these calculi should be removed. In these instances the infection is not stationary, the kidney function is progressively impaired, the opposite side is undergoing compensatory inflammatory changes, it becomes a surgical or manipulative necessity. It is not difficult to understand the reasons in these cases for one being lulled into a false sense of security; procrastination and hopeful expectancy we consider a short sided policy. Remove the calculus unless there are contraindications, and other vague symptomatology will finally be eliminated.

The removal of the calculus by whatever means, does not relieve us of responsibility, as we feel that our greatest mission is the understanding and prevention of recurrence.

We are all conversant with the fact that a most plausible advance in the prevention of recurrence is our recognition of the fact that the presence of a calculus is but an outward expression which calls one's attention to an underlying pathologic entity due to various metabolic alterations. Our knowledge of the causative factors productive of urolithiasis, such as, vitamin deficiencies, plagues on the renal papillae, stasis and infection, altered metabolism, hyperparathyroidism and hypercalcemia, have been of small assistance in the prevention of stone recurrence. We could cite any number of cases of small millet seed renal stones, both unilateral and bilateral constantly being formed in the kidney, in which ureteral calculi are continually being removed with but small difficulty, due to repetition, however, the underlying cause is as yet far from clarification. The foregoing citation is not unlike many other medical problems, in which the predisposing causes and pathogenes are vaguely understood, although the therapy is generally satisfactory, for example, peptic ulcer.

CITE OF STONE FORMATION

From clinical investigations of urolithiasis and most note-worthy the excellent studies of Randall, it appears that ureteral stones are pri-

marily originated in the renal papillae, calices, and renal pelvis; whether calculi develop primarily in the ureter or not, appears purely academic and of small consequence. It seems difficult to understand these ureteral formations in the light of ureteral parastalsis and downward flow of urinary stream, although they are reported in the literature.

We have frequently seen cases of stones of small diameter produce enormous dilatation of the ureter, equaling the size of the small intestine, with extensive periureteral inflammation and thickening; the ureter partially or completely blocked with hydronephrosis resulting. If extensive infection does not exist, stone removal is sufficient, and nephrectomy and nephrotomy becomes a secondary consideration as the kidney generally returns to normal limits. Paradoxical as it may seem we operated a case recently in which a stone of large dimensions practically occluded the ureteral lumen and yet the upper ureteral spindle and renal pelvis presented but minor dilatations. We find it difficult to evaluate these cases of large stones impinged at the iliac crest minus ureteral or renal morbidity. It is quite reasonable to assume that in all probability in these instances the stone may have originated at a normal ureteral constriction or possibly descended from the kidney during a period of neuro-muscular imbalance which was productive of acute ureteral dilatation.

URETERAL LITHIASIS AND URETERAL STRICTURE

Any speculative hypothesis on lithiasis, be it renal or ureteral, instantly becomes debatable, based on personal opinion and experience. We have been impressed with the infrequency of fibrotic changes in the ureter during the impaction or passage of calculi down its lumen. The situation is entirely incompatible with similar medical phenomena and especially the hyperemia and inflammation which invariably results from trauma. It is possibly true that in certain instances strictures do result from or are an associate of ureteral calculus, otherwise why do symptoms occasionally persist after stone removal. That stricture resulting from migratory or impacted stones is the exception rather than the rule is frequently borne out by ureteral investigations following stone transit or by post calculus ureterogram.

Urologists who are in a position to manage a large series of calculus disease have been impressed with the relative infrequency of gross pathologic ureteral changes, seen in inaccessible stones lying in the parietal pelvic ureter. Cases have been reported and doubtless many have witnessed patients with neglected calculi which have produced ureteral atony, peri ureteritis and rupture, a typical ureteral emphyema, the stone is delivered from a pocket of pus, the part drained and unbelievable as its appears restoration is not uncommon; sinuses close kindly and readily and fistulas do not seem to persist.

It appears advisable in the foregoing recital to err on the side of safety, remove the stone and the establishment of drainage will often suffice, depending entirely on the degree of opposite renal capacity, and renal reserve on the operated side. A nephrectomy or nephrotomy drainage can be later instituted if the condition warrants.

SURGICAL MANAGEMENT

The management of ureteral calculi, whether medical, manipulative or surgical presents one of the most interesting chapters of urological therapy. Success depends entirely on experience, surgical and anatomical knowledge, and strict adherence to proven surgical principles.

A clear comprehensive understanding of ureteral physiology and ureteral behavior in other pathologic states lends valuable aid in arriving at the correct course to adopt in some of the uncertainties of stone management. Granted that many abdominal and pelvic calculi are successfully attacked with limited anatomical knowledge, nevertheless this action is based on a false preface and investigation ceases to become a virtue.

For descriptive purposes and to assist us in the various surgical approaches, we have found it convenient to divide the ureter into abdominal and pelvic segments, the former being subdivided into the lumbar ureter 8 cm. in length, and the iliac ureter also 8 cm. long. The pelvic ureter is approximately 15 cm. long and is subdivided into the parietal and Juxtovesicle ureter and intravesical. In order to expediate matters and that our surgical attack will be of more assurance, it appears necessary to become familiar with certain anatomical objectives. The ureter which is approximately 31 cm in length

lies retro peritoneally, is intimately attached to the parietal peritoneum; it is not dissociated when the peritoneum is stripped forward. As the ureter enters the pelvis it is crossed by the root of the mesentery and the terminal ilium, it lies behind the descending and transverse parts of the duodenum in its proximal portion. The spermatic, right colic and iliocolic vessels cross the anterior surface of the ureter and separate it from the peritoneum. Because of their vascular relation the extraperitoneal lumbo-inguinal approach to the ureter is preferable to the transperitoneal. On the left side the ureter lies deep to the peritoneum, covering the left infracolic space. As it enters the pelvis it is covered by the pelvic mesocolon. The spermatic, left colic and sigmoid vessels covers its anterior surface. The ureter in its pelvic segment is also closely related to the peritoneum, crosses the pelvic brim in front of or a little lateral to the common iliac bifurcation, it descends abruptly between the peritoneum and the hypogastric artery which separates it from the posterior wall of the pelvis and the great pelvic nerve trunks. It is well to remember that the superior vesicle artery lies directly above as the ureter approaches the bladder.

The vas deferens, the ureter and seminal vesicles produce a close anatomical proximity at the base of the bladder, and the vas is an unfailing guide as it appears at the internal abdominal ring.

Stones located in the iliac, pelvic ureter, juxta vesicle ureter are often very confusing and difficult of delivery, hence it becomes imperative that we are clearly acquainted with anatomical landmarks. They are particularly indispensable in this area. Preoperative ureteral catheterization in impacted pelvic stones cannot always be depended upon for ureteral identification, as catheterization is generally impossible in these instances.

FACTORS DETERMINING OPERABILITY

Being fully aware that the degree of renal damage in conjunction with ureteral calculus is often an uncertain factor, it becomes necessary that the calculus should be removed with dispatch and with a minimum of destruction to the renal parenchyma. The happy solution naturally would be a spontaneous passage which occurs in a majority of cases of 0.5 cm sized stone. We

are unalterably opposed to frequent attempts at instrumental delivery in the presence of renal infection, regardless of the many and ingenious improvements available for one's selection. The ultimate choice will depend solely on judgment and past experiences. Infection and back pressure interpreted correctly generally signifies more radical measures in order to preserve renal function.

Our choice between surgical and manipulative measures depends on certain factors as 1. Size and location of the calculus. 2. Frequency of pain and colic. 3. Age and general health. 4. Has the stone made any progress within reasonable limits of time. 5. Degree of renal assault. 6. Social and economic position.

The size and location of the calculi as shown Roentgenologically presents an important factor in determining the choice of procedure. It is important to remember that a stone held at the ureteropelvic junction or upper one half of ureter is simple of extraction by muscle splitting extraperitoneal operation, hence we feel it best to remove them surgically, in certain cases where progress is not satisfactory. Further descent has often produced great suffering and not the least important is the fact that it may become impacted in an area less favorable and present greater technical difficulties.

In our opinion the small sharp speculated stone caught in the lumbar ureter is generally more satisfactorily removed surgically, as frequent energetic intraureteral manipulations permanently damages the ureter and not uncommonly the calculus is forced back into the renal pelvis and a return of ureteral spasm and colic ensues.

COLIC

Colic is not always a dependable symptom in stone management. We have seen many cases in which the ureter was completely or partially occluded, yet ureteral and renal pain had entirely ceased. Delay is justifiable when colicky pains are brief and some progress is noted. However, such delay entails much responsibility and intelligent watchfulness.

CONDITIONS DEMANDING IMMEDIATE SURGERY

Cases demanding emergency surgical relief are far less frequently seen than formerly. 1. The absolute emergencies are in those few cases

in which life is in jeopardy or renal tissue is obviously failing. 2. Cases of renal agenesis with an impacted stone in the remaining ureter and threatened uremia. These cases must be given immediate relief through the medium of open surgery; to temporize with intraureteral attempts is often fatal. 3. The cases which have been unskillfully handled through crude manipulation which produce extensive ureteral damage, with extravasation, septicemia and reflex anuria. 4. In those few cases of bilateral partially impacted ureteral calculi in which ureteral catheterization is impossible for the purpose of assuring drainage, and renal destruction is eminent. The foregoing does not cover all surgical emergencies, however, all are significant and should be properly recognized. A conclusive evaluation in these instances seems quite difficult.

A group of interesting cases in which surgery is not immediately eminent, although ultimate, are those in which due to renal impairment, relief is obtained surgically. It has been demonstrated by Hinman that after four weeks of complete occlusion, in the absence of infection the kidney will terminate its excretory function, if the obstruction is removed and if the other kidney has a dependable capacity, partial restoration of function will follow, although slow deterioration and disintegration results. It has been frequently noted, that should both kidneys be extensively damaged by bilateral ureteral calculi, removal of the calculus will generally be followed by restoration of function on that side.

Pyonephrosis plus ureteral stone is the most destructive lesion to the kidney, and patients in this group are desperate operative risks. In these instances a nephrectomy or trans renal drainage as a preliminary is sound surgical judgment, preserves life, establishes drainage and eliminates infection. The ureteral calculus is better undisturbed as ureteral empyema rarely occurs, (approximately 2 percent) and as we have noted in many cases, symptoms certainly do not reappear. If you must attack the stone, that can be accomplished when health is re-established.

In cases of advanced hydronephrosis secondary to ureteral stone and dilatation, the renal status will determine our choice of procedure. Nephro-ureterectomy is first considered, as otherwise a functionless infected atrophic sack remains.

Should the kidney also harbor calculi, plus considerable renal reserve, attempt the ureteral calculus first, and thereby obtain drainage. The renal phase can be operated later if the condition warrants. In other words have in mind the preservation of renal tissue always. In cases of small renal stone complicating ureteral calculus, a pyelo-lithotomy may safely be performed in conjunction with a ureterotomy in certain instances. However, we feel in all cases of doubt, especially in dealing with multiple calculi and renal insufficiency, prolonged complicated surgical procedures are to be condemned, as convalescence is prolonged and costly. Nephrectomy and nephrotomy in ureteral stone surgery maintains a real, critical and substantial office. As has been stressed so frequently in this treatise, successful surgical care of ureteral calculi depends greatly on renal assurance and a firm belief that nephrectomy is a life saving measure. While nephrectomy for ureteral stone is not uncommon it is well to remember that a ureterectomy may become a necessity later, hence divide the ureter as near the pelvic brim as possible, in order to ease and to simplify matters later. In so doing a small secondary incision is sufficient and infinitely less shock is associated. Calculi in those cases which require nephrectomy are usually impacted in the parietal or juxta vesicle ureter and are associated not infrequently with marked ureteral and renal dilatation rendering extraction a simple matter. We divide the vascular pedicle first which renders better visibility of the infected renal pelvis and ureter, and sterilization is simpler of accomplishment.

We feel that the ureteral stone problem presents such far reaching factors that each case is certainly a distinct entity. Our decision as to the correct method of pursue depends on an exacting and critical evaluation of the physical status of the patient, his definite renal values and the degree of his emergency.

SURGERY

When we approach the surgical aspect of renal relief, necessitated by the presence of ureteral stone, our first consideration must be the extent of kidney damage. This knowledge will give us the key to the situation, and hence avoid unnecessary surgery. Secondly, the size and location of the calculus will disclose our operative plan. The correct stone position prior to surgery is

imperative and in all instances confirmative x-ray films must be taken immediately before any surgical attempts. We have seen many cases of small ureteral calculi become exceedingly illusive regardless of the most conservative and thorough preoperative investigation. The large 1 to a cm. calculi present no uncertainties in surgical management. However, on the other hand the small movable calculus not fixed in position, may after an extended period of search become rather disconcerting and deflating.

The subject of surgical approach is adaptly discussed under the following, and depending solely on calculus location.

1. Operation for stones at the uretero pelvic junction and upper one third of lumbar or abdominal ureter.

2. Calculi held in the middle two third of the ureter and including those above the pelvic brim.

3. Operation for stone in pelvic segment of ureter.

4. Operation to reveal the parietal ureter and stones impinged in the juxta vesicle or intramural ureter.

IMPORTANT SURGICAL CONSIDERATION

When one undertakes the responsibility of ureteral stone surgery it is well to remember that incisions should be sufficiently large to enable a full and unrestricted view of the ureter and adjacent structures. The ureter must be thoroughly freed so that it may be well manipulated. Stones firmly fixed in the natural physiologic constrictions or ureteral spindles are better removed by forceps or scoups through an incision in the ureter above the stone, rather than directly over it, as incisions in these natural areas of narrowing often add to future difficulties. When stones have been removed one must not forget to investigate the entire course of the ureter through the medium of a ureteral catheter. In those cases of stone complicated by fibrous strictures plus pelvic and ureteral dilatation and with sufficient renal reserve for assurance, the ureter is drained by a 10 cc syringe, the stone removed at the stricturous area and the longitudinal incision is closed transversally. We have found it of distinct advantage to splint these ureteral plastics whenever possible, either preoperatively or postoperatively. The ureteral catheter prevents leakage and assists renal drainage. Ureteral incisions are usually closed by an

occasionally interrupted 00 cat gut suture and drained for 8 to 10 days. It has been noted that ureteral leakage generally appears about the 10th day. Contrary to the foregoing we feel that the ureter will close kindly in most instances whether sutured or not; in either case drainage is necessary. Occasionally marked edema of the mucosa follows ureteral incisions and in order to prevent evagination of the lips suturing is advisable.

TECHNIQUE OF SURGICAL APPROACH

We shall not discuss the technique of surgical removal of stone at the uretero-pelvic junction or upper one third. Their removal present no controversial problems, suffice to say, the well known posterior lateral renal incision is generally used and quite satisfactory in all cases. If you are dealing with an unusually short renal pedicle do not attempt to suture, adequate drainage will suffice after a thorough exploration of the kidney.

Stones lodged in the middle two-thirds of the ureter are approached by a left or right straight rectus incision, the so-called Gibson incision or a slightly altered McBurney, depending somewhat on whether the stone is in the middle or lower third of the ureter. The incision may be satisfactory placed at any point on the abdominal wall below the umbilicus and over the suspected obstruction.

The skin incision is made in a line paralleling the fibers of the external umbilicus. It starts at the border of the rectus extends upwards and outwards for 10 to 12 cm. The external oblique is split in the directions of its fibers and retracted. The common tendon of the internal oblique and transversalis is opened as they join the anterior sheath of the rectus. Care must be taken at this time not to injure the peritoneum as it is rather closely adherent to the transversalis fascia. Complete hemostasis is important, and the proper adjustment of retractors. The peritoneum is lifted back and the ureter will be found adherent to its posterior sheath. Under ordinary circumstances the ureter is of easy identification when one remembers that it clings to the peritoneum and not to the psoas muscle.

LOWER URETER

The surgical approach for stone in the middle

and lower ureter differs only in extent. The skin incision starts at approximately the level of the anterior superior spine and is carried downward and inward to the midpoint of the symphysis. The fascia of the external oblique and anterior fascia of the rectus are cleanly prepared and full excised beyond the limits of the upper angle of the wound. Fascial planes and aponeurosis are always barriers to good exposure hence must be freely incised. Muscle layers are split in the direction of their fibers and sufficiently retracted for free exposure. The transversalis fascia is nicked and incised on a grooved director as you remember the peritoneum is rather closely adherent in this area. The peritoneum and abdominal contents are carefully lifted upward and inward and the ureter which is not uncommonly loosely attached is easily brought into the field.

The ureter in its lower middle segment approaches the great vessels at the point of bifurcation. The spermatic or ovarian vessels, as formerly cited, must be noted as they generally lie immediately external to the ureter at its middle, below they diverge and pass downward on the posterior surface of the peritoneum.

In our experience the foregoing technical description gives ample exposure of the ureter in its entire extent and including the juxta vesicle segment. Stones held in the deep pelvic ureter in most instances can be milked upward between thumb and finger to a more accessible position for ureteral incision. When this is not possible the ureter is incised at the pelvic brim or higher and instrumental delivery is usually successful.

In cases of firmly impacted calculi, generally speculated, located at the uretero vesicle junction, we have found it expedient and not particularly difficult, to approach them through a mid line suprapubic incision. The bladder is pulled forward and denuded of its peritoneal covering and approximately two inches of the ureter is visible for any surgical intervention.

Calculi impacted in the intramural ureter, which have resisted instrumental attempts of delivery are easily removed by a cystotomy.

In conclusion and summary we feel that the entire subject of ureteral lithiasis presents momentous potentialities, often vague in exact interpretation and analysis. No attempt has hereby been made to cover the many formidable prob-

lems attending manipulative or surgical management, as what you do, or do not do, depends largely on adaptability, judgment and personal decision on the problems presented in a given case.

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THE EARLY DIAGNOSIS OF MALIGNANT
TUMORS OF THE FEMALE
GENITAL TRACT

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In the past twenty years the signs and symptoms of malignant tumors of the female genital organs have not changed. During these years the somewhat better end results, due to improved methods of therapy, have not obliterated the stigma of the relatively stationary proportion of patients in the early stages of the disease that reach hospitals where they can receive adequate therapy. For example, consider Table I in which the number of patients, according to the stage of the disease when first seen, is expressed in percentages of the total number of patients suffering with carcinoma of the cervix seen at Memorial Hospital during the indicated years.

TABLE I

COMPARISON OF PROPORTIONS OF PATIENTS
WITH EARLY AND BORDERLINE STAGES OF
CARCINOMA OF CERVIX IN PERCENTAGES OF
THE TOTAL CERVIX PATIENTS FOR THE
YEARS INDICATED.

YEAR	1922-1924	1939-1940
EARLY	12.5%	15.0%
BORDERLINE	16.0%	21.0%
TOTAL CASES	353	254

*Healy¹

“Early” means that the disease was limited to the cervix (not necessarily League of Nations Group I) and “Borderline” means extension of the disease to the paracervical tissues but without detectible infiltration of the parametrium.

In the enthusiasm of spreading optimism for publicity campaigns for lay public consumption, one is tempted to point out an improvement of one-fifth, or twenty per cent. in the proportion of early cases when 1940 is compared to 1920. However, the bitter fact remains that, of patients presenting themselves at Memorial Hospital with cancer of the cervix, eighty-five per-

From the Gynecological Service of Memorial Hospital.

Read before the Joint Session of Sections on Medicine, Surgery, Radiology, Public Health and Hygiene, Pediatrics, Obstetrics and Gynecology of the Illinois State Medical Society, May 22, 1941, Chicago.

cent still have the disease already extended beyond the cervix at the time of their first visit. Similarly, only twenty-two percent² of patients with cancer of the corpus have a normal size uterus, and of the patients with cancer of the vulva, sixty-one percent have palpable inguinal glands when first seen. Since successful results diminish rapidly with the progression of the disease beyond the early stage when therapy is first started, the failure to appreciably improve the proportion of patients in the early stage is the obvious bottleneck in the production of a defense armamentarium against malignant tumors. In spite of increased publicity for lay education, the delay is still largely due to failure of patients to recognize symptoms, or to their reluctance to consult physicians, until the disease is well advanced. Too often, however, the blame lies with the medical profession in our failure to make the diagnosis while the disease is still early enough to be successfully combated. The treatment of advanced cancer is still, with very few exceptions, only the palliative treatment of symptoms.

For these reasons I offer no apologies for repeating at this time factors in the early diagnosis of malignant tumors of the genital organs, fully realizing that these can be found in any standard text book on gynecology.

Carcinoma of the vulva, having the oldest age incidence of any cancer in females (60 years at Memorial Hospital) practically always occurs in the patient beyond menopausal age and is associated with the classical senile vulva of estrogenic deficiency. The leukoplakia and pruritis vulvae (with or without diabetes) practically always precede the stage of fissures which fail to heal and become indurated. The papillary type give evidence of ulceration before the discomfort of bleeding and odor forces the patient to seek therapy. The rare cases seen in women of the third decade are practically always superimposed upon skin lesions such as psoriasis or lymphogranuloma. It is the medical profession who must cease to keep the leukoplakic or kraurotic vulvae under so-called “observation,” and must prophylactically remove these leukoplakic areas, for here indeed an ounce of prevention is worth many pounds of cure. It is often impossible to tell whether the papillary lesions are benign or malignant unless a biopsy is taken from the base of the tumor.



Photograph 1
Benign Papilloma of Vulva.

Case 1*. Photograph I shows a benign papilloma of the vulva treated by simple vulvectomy. Alive ten years later.

Carcinoma of the cervix, appearing at any age in the childbearing period of life, is usually found in parous women. Unfortunately there are still no early symptoms of carcinoma of the cervix. The cardinal symptoms of watery discharge, bleeding on slight trauma, and pain are evidence respectively of necrosis of tissue with invasion of the lymphatics, erosion of blood vessels, and extension to pelvic nerve trunks, and all three bear evidence of the advanced stage of the disease. There are, however, two signs that are fairly constant, — first, asymmetry of tissue consistency, and, second, fragility of tissue. Four types of carcinoma found clinically are:

1. Asymmetrically indurated cervix, usually lacerated and ulcerated.
2. Generally enlarged bulky cervix, usually (and eventually always) ulcerated.
3. Papillary type with tendency, at first, to grow outward into the vaginal lumen rather



Photograph 2
Carcinoma of Vulva.

Case 2.* Photograph 2 shows papillary carcinoma of the vulva reported from the biopsy of the superficial papillary structure as benign, but the biopsy taken from the base of the lesion showed carcinoma. This patient had a postoperative recurrence ten months after radical vulvectomy, and died two years later.

than to infiltrate to surrounding tissue.

4. Infiltrating type with normal appearing vaginal portion of the cervix.

The first three types usually show some ulceration. The third type, due to the fragility of its papillary structure, is the only type that bleeds before there is erosion of blood vessels. The fourth type, and unfortunately this group comprises more than half of all the cases, usually has infiltrated beyond the boundaries of the cervix before any symptoms appear. A rectal, as well as vaginal examination, will often disclose the diagnosis as well as the stage of the disease and should never be omitted. Such diagnostic aides as the colposcope, the application of aqueous iodine solutions, vaginal smears, and the sedimentation curve recently described by Feldman⁴, may all be helpful, but the final proof of the diagnosis is only made by having an adequate tissue biopsy examined by a competent patholo-

*Previous publication³

gist. He can only rule on the tissue submitted and, if the clinical evidence disagrees or arouses suspicion, then the clinician should repeat the biopsy, — if necessary, amputate the cervix so serial sections can be examined. In the mad race of percentages, whereby one clinic tries to prove its method of therapy superior to those of other clinics, there is a tendency to include, statistically, patients of disputed pathological diagnosis. By including chronically irritated cervixes with changes in the basal layer cells or other precancerous lesions in series of cancer patients, we may make our five-year percentages more nearly approximate the ideal one hundred percent cure rate, but by so doing we fool only ourselves, especially if in proven cases eighty-five percent of all these patients still present themselves for treatment with extension of the disease beyond the cervix. As the disease is usually found in parous women and since the ulcerations of the cervix which precede cancer often do not appear until many months after childbirth, we can hardly hope to discover early cancer if the obstetrical patient is discharged six weeks postpartum. My own obstetrical patients are followed two years after delivery, with examinations at frequent intervals. Routine gynecological examination, including visualization of the cervix with the prophylactic correction of diseased cervixes and biopsies at the slightest provocation, will do much to bring cancer of the cervix to proper therapy in the earlier stages of the disease. Inability or failure of doctors to recognize or to investigate suspicious lesions offsets the possible value of routine examinations.

Carcinoma of the corpus occurs usually in women at or beyond the menopause. The average age at Memorial Hospital is 55 years. Healy and Brown⁵ found that ninety percent had completed the menopause, and in a series of one hundred consecutive cases of carcinoma of the corpus at Memorial Hospital only eighteen patients were under fifty years of age and only four under forty years of age. While the cardinal symptoms of bleeding, watery vaginal discharge, and pain are here also evidence of advancement of the disease, they appear relatively earlier than in carcinoma of the cervix. Fortunately for the patient, carcinoma of the corpus tends to limit itself to the uterus for a relatively long period of time because the average dura-

tion of symptoms before treatment is still more than twelve months. The bleeding, usually postmenopausal or metrorrhagic, is most often neglected by the patient, but far too often by the physician as being merely "menopausal bleeding," — whatever that is supposed to be! The slight watery discharge is ignored by otherwise fastidious patients unless the odor causes them to seek relief. Pain is indeed an advanced symptom and is usually associated with the so-called "frozen pelvis." The uterus need not be enlarged; in fact, if it is, the prognosis is poorer by forty percent according to Healy⁵. Any patient having post-menopausal bleeding of any sort, or metrorrhagia at any time or age, deserves competent microscopic examination of the endometrium. To avoid the obvious dangers of curettage, many diagnostic methods have been devised. The uterus, by its very structural nature, has presented obstacles to hysteroscopy and hystero-graphy not encountered in various other less rigid hollow viscera. Vaginal smears and suction biopsies are proving of increasing value when they are positive. However, the final diagnosis is still made by the exploration of the uterine cavity and obtaining adequate tissue for microscopic examination. This procedure, in the opinion of the writer, is still most accurately performed with the curet. One must be prepared to face the disappointment of finding that many such curetted patients prove to have only the endocrine imbalance of menopause, benign polyp, or simple senile or atrophic metritis. In fact, only thirty-three percent of patients investigated in this manner at Memorial Hospital proved to have carcinoma. Most patients can survive this disappointment.

Carcinoma of the ovary occurs at any age from infancy to senility, the average age at Memorial is forty-five years. The symptoms most frequently encountered are enlargement or swelling of the abdomen, pressure symptoms with only occasionally actual pain, and menstrual irregularities, obviously symptoms of the advanced stage. In 284 consecutive cases recently studied at Memorial Hospital, thirty-three percent first noticed swelling of the abdomen, thirty-five percent noticed pressure symptoms, with only a few complaining of pain. Only twenty percent gave irregularity of uterine bleeding as the first symptom. Menstrual irregularities so frequently

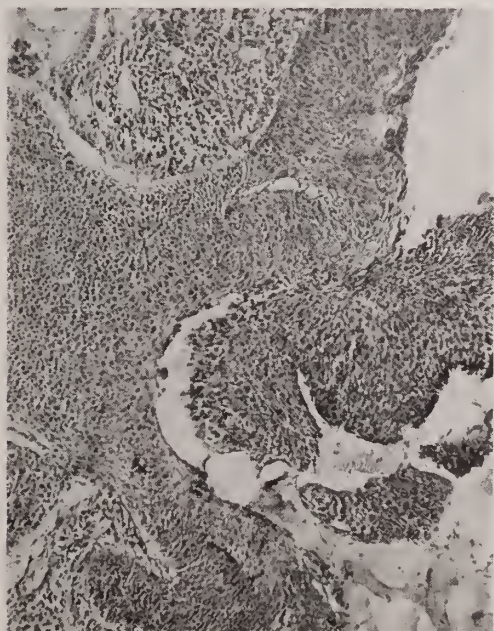
noted with the non-proliferating types of cystic tumors are rarely noted as the first symptom of malignant ovarian tumors. Four out of five patients complaining of menstrual irregularity had cessation of menstrual periods for at least one month before there was any increased bleeding or vaginal hemorrhage noted. Actual pain, except in tumors with acutely twisted pedicles, is seldom encountered, though pressure symptoms may be the first symptoms noted. All ovarian tumors are to be suspected of malignant characteristics until disproved. Peritoneoscopy, even though growing in popularity, seems to the

writer to have very limited possibilities, and it is my opinion that exploratory incision, with direct visualization, gives much more valuable information. In modern hospitals the ovarian tumor deserves a frozen section with actual diagnosis at the operating table just as much as does a breast or any other tumor. Such a routine will do away with incomplete operations because of failure to determine grossly the malignant nature of the tissue. Any operation for carcinoma of the ovary which does not include complete removal of both tubes and ovaries and the entire uterus is incomplete. This is not an exaggeration when we realize that in 1940 as in 1920 eighty percent of all ovarian carcinomas

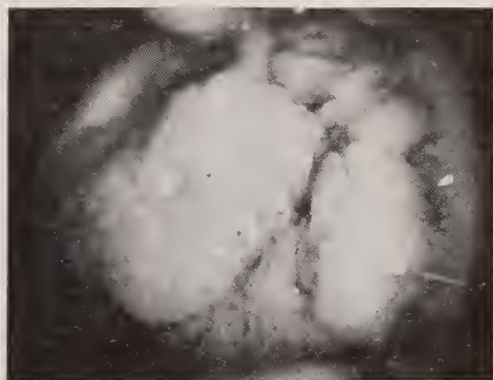


Photograph 3
Carcinoma of Cervix

Case 3. Photograph 3 shows early epidermoid carcinoma of the cervix. Microphotograph 3a is the biopsy of Case 3.



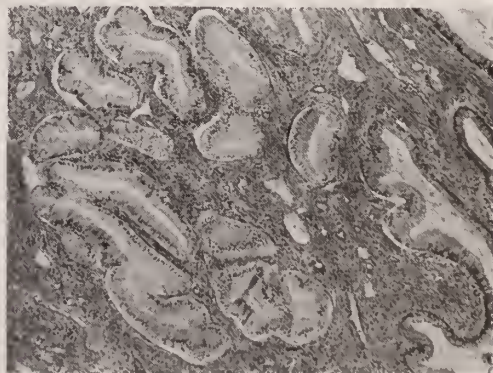
Microphotograph 3a
Carcinoma of Cervix.



Photograph 4
Papillary Cervicitis

Case 4. Photograph 4 shows the papillary cervicitis resembling Case 3. Microphotograph 4a is the biopsy showing the benign but papillary nature of the lesion in Case 4.

These cases are shown to illustrate the necessity of biopsies for accurate diagnosis; the vulva lesions show in addition, the necessity of taking the biopsy from the base of the lesion.



Microphotograph 4a
Papillary cervicitis.

admitted to Memorial Hospital still have merely had incomplete or only exploratory operations performed.

CONCLUSIONS

1. Results in the treatment of malignant tumors of the female genital tract will not be appreciably improved until we can increase the proportion of patients in the early stage that reach proper therapy.

2. Routine examinations will increase this proportion only when performed by competent doctors who know what they are looking for.

3. Such examinations often omit but should include:

- (a) Visual exposure of the cervix.
- (b) Rectal examination.
- (c) Biopsy at the slightest provocation to be examined by a competent pathologist.

4. Education of the lay public as well as the doctor should prove a factor in earlier diagnosis.

5. Extending the postpartum period of observation by frequent examination to two years should increase the "early-stage" proportion of patients with carcinoma of the cervix, as well as disclose the ulceration that can be treated before the lesion becomes malignant.

6. Post menopausal bleeding or metrorrhagia at any age deserves microscopic examination of the endometrium.

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A definite increase in the number of old people dying from tuberculosis has occurred during the past few years. In the year 1940 almost one-fourth of the tuberculosis deaths in the City of Peoria, Illinois were persons of 60 years or over. As is true the country over, in the age group of 15 — 34 more women died than men. The hazards of puberty in the girls and the strain and stress of childbearing are chiefly responsible for this fact. The search for tuberculosis among young women offers a fertile field. M. Pollak, M.D., Ann'l rep. Peoria Mun. Tuber. Sanatorium, 1940.

THE ROLE OF PERITONEOSCOPY IN ABDOMINAL SURGERY

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The exploratory laparotomy has long been fraught with disappointment in hopelessly inoperable or unoperable conditions. Diagnoses sufficiently accurate to prevent many of these occurrences is heartily welcomed by the surgeon. Endoscopy in its many phases has steadily increased the accuracy of diagnosis, thereby, reducing to a minimum the unfortunate surprises at the operating table. The surgeon may now turn to the peritoneoscope for additional information in certain cases and eliminate, in part, much of the suffering and expense attendant upon the resultless laparotomy.

The object of this discussion is to evaluate peritoneoscopy in the hands of the general abdominal surgeon. There are a few expert peritoneoscopists whose experience and ability with the instrument, increases to a high level the breadth and accuracy of diagnosis of intra-abdominal conditions. I am not addressing these experienced operators, but the surgeon who wishes to reduce his number of fruitless laparotomies and increase his preoperative diagnostic accuracy by the employment of a simple procedure.

Visualization of the contents of the abdomen through an instrument was first noted when Kelling,⁷ in 1901, demonstrated on a living dog. The abdomen was inflated and a Nitze cystoscope introduced successfully. A monograph by Kelling appeared in the German literature in 1910, dealing with examination of the intra-abdominal contents by instrumental visualization in man. Independently in the same year, Jacobaens of Stockholm published a paper on the same subject. In 1923, Kelling, before the German Surgical Society, again appeared in the literature in the interest of the method he first described twenty-two years previously. There was no essential difference in the method then used from that of today.

For direct visualization of the contents of the upper abdomen, Bernheim³ of Baltimore, in 1911, used a small proctoscope. Then followed in

From the Department of Surgery, Carle Hospital Clinic.
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rapid succession the work of Nordentaft¹¹ of Copenhagen, Tedesko²⁰ of Vienna, and Stolkind of Russia. In 1913, Meirelles⁹ of South America, discussed his experience with laparoscopy. In that year and again in 1915, the Parisians, Renon¹³ and Rosenthal,¹⁵ concluded the method was best suited for inspection of the liver and peritoneum. An attempt to design a satisfactory instrument was made by Roccavilla,¹⁴ of Italy, in 1914 and 1920. He placed the light outside the abdomen reflecting the beams into the cavity. Orendoff,¹² Chicago, 1920, recommended peritoneoscopy as being most satisfactory in the diagnosis of hemoperitoneum, tuberculous peritonitis and extra uterine pregnancy. In 1924, papers by Zolhikofer²³ of Switzerland, Unverricht²² of Germany, and Stone¹⁹ of Kansas, appeared in the literature. In the following year Nadeau and Kampmeir¹⁰ of Chicago, wrote in detail on technique.

Peritoneoscopy up to 1934 was not entirely satisfactory because of inadequate instruments. The cystoscope had been used either in exact or modified form for the procedure. Ruddock, working with the American Cystoscope Company, developed a versatile and fairly satisfactory instrument which is the one generally used today.

The instrument consists of several parts, each adapted to its specific function. The small blunt needle for the production of the preliminary pneumoperitoneum has a prominent flange at the outer end making for ease of manipulation. The larger and longer tubular sheath has a fibre tip. The snugly fitting telescope passes through the sheath after removal of the dull bistoury-tipped obturator. This affords direct vision with slight magnification. An ingenious biopsy telescope and an aspirating nozzle are two additional pieces of equipment which function through the sheath. A Rehfuß tube with an electric light on its tip, an inflation bulb and electric cord and batteries are included in the list of accessories.

The technique of the examination is simple and not difficult if strict adherence to details is observed. Careful preoperative preparation insures more comfort to the patient and lessens the chance of untoward reactions. My practice has been to give sodium amytal gr. III about ten hours and sodium pentobarbital gr. 1½ about one hour preoperatively. A hypodermic injection of 1/6 gr. of morphine sulphate is given thirty

minutes before the examination. An empty stomach and bowel is essential in the elimination of writhing and vomiting. The abdomen is shaved and the skin prepared as for the usual laparotomy. Strict aseptic technique is followed throughout. Preparation and draping of the entire abdomen is advisable, that the wall may be transilluminated in any area. The patient is placed on an operating table which can be manipulated in all directions. The room should have shades for darkening. I have found it advantageous to reduce the lighting to a minimum during the preliminary preparation, in this way allowing the eyes to accommodate for greater darkness and better visibility when using the peritoneoscope. The site of puncture is chosen, dependent usually upon the area most important in the inspection and upon the most probable absence of adhesions postoperative or otherwise. I have found that satisfactory exploration of the entire abdomen is possible from a point about 2 cms. to the right and below the umbilicus. Adhesions in this region would obviously require selection of an alternate area. Superficial and deep injection of the abdominal wall for a radius of 3 cms. from the point of puncture is requisite. An incision 1½ cms. long is made through the anterior sheath of the rectus muscle. The usual type of abscess knife is particularly well adapted to this purpose.

The inflation needle is then passed through the abdominal wall, there being a characteristic sense of sudden loss of resistance as the peritoneum is pierced. A simple test of entry is to rotate the outer extremity of the small trocar in a complete circle. If this can be done without appreciable resistance, the abdominal wall is acting as a fulcrum and the distal end of the instrument must be well within the abdomen. The stylet is withdrawn and the inflation bulb attached. The abdomen is distended with the air at room temperature until the patient begins to be somewhat uncomfortable. The pulse, respiration and blood pressure is recorded frequently by an anesthetist.

After withdrawing the inflating needle, the large sheath with its bistoury pointed obturator is passed through the tiny incision. Ruddock and others advise a rather quick firm thrust of the instrument for passage. It has been my practice to exert firm steady pressure directed away from the bodies of the vertebrae, at the same

time rotating the instrument to and fro. The obturator is removed and the light carrier inserted. More air is installed and the inspection of the abdomen begun.

The most easily found landmark is usually the right lobe of the liver. The upper surface and anterior margin is best seen since the pneumoperitoneum allows the liver to fall away from the diaphragm creating considerable space. The liver lends itself more consistently to accurate inspection than any other intra-abdominal organ. There is a wide variation in its color, size and texture. It may be of a light chocolate color or swollen and cyanotic with the margins smooth and rounded as in passive congestion. The typical leathery pebbling or the more extreme hobnailed appearance of cirrhosis is usually easily recognized. The somewhat umbilicated yellowish lesions of unequal size so characteristic of metastatic carcinoma are rarely mistakable. There may be deep or superficial scars of old hepatitis or those from healed lues. The tip of the normal gallbladder is seen at the margin of the right liver lobe. There may be wide variations from its normal blue-green color and the presence of adhesions to its fundus is usually determinable.

Information in jaundiced cases may be helpful when an enlarged, tense gallbladder is visualized. Carcinoma of the head of the pancreas may be the presumptive diagnosis and cholecyst-gastrostomy or duodenostomy considered. Should the gallbladder be shrunken and opaque and more or less submerged by adhesions, one may suspect the presence of choledocholithiasis.

In most cases a fair portion of the anterior wall of the stomach can be seen. The pylorus and first part of the duodenum may be observed satisfactorily. Occasionally it is possible to examine as much as two-thirds of the stomach. Its size, color, mobility and peristaltic activity are observed. By means of an ingenious light on the end of a small tube, it is possible to inflate and transilluminate the stomach in an effort to determine operability in cases of carcinoma of the stomach. Ruddock gives considerable credence to this method but in my hands it has been entirely unreliable in the very limited number of attempts. The spleen is usually not seen if it be of normal size. With the patient in a high Fowler's position with the left side elevated, I have occasionally been able to make out the

margin of the spleen high in the left upper abdomen.

The patient is placed again in the horizontal position before continuing the examination along the left side. The table may be tipped to the right, permitting better inspection of the descending colon. With the patient in Trendelenberg position, the examination of the pelvic contents is made. An assistant manipulates the uterus through the vagina or rectum or both, thereby, facilitating an opinion as to mobility, presence of adhesions and size. I have been reluctant to make elaborate claims in the diagnosis of pelvic conditions other than those applicable to the uterus through the peritoneoscope. The presence of fluid, bloody or otherwise, can be established, but visualizing both ovaries and tubes with sufficient distinctness for accurate deductions has been impossible for the most part. The examination continues in the clockwise direction and is concluded with inspection of the omentum, bowel and peritoneum in the central area of the abdomen. I have never as yet identified the appendix. On two occasions the omentum partially filled the cavity as a mass appearing somewhat like sea foam. What had happened was this. The tip of the pneumoperitoneum needle had entered the omental tissue which had been well inflated in the process of filling the abdomen with air. If the normal outline of the bowel is disturbed by an elevated area, suspicion of a retroperitoneal mass is aroused. Omental and peritoneal implants of metastatic carcinoma are easily recognizable. These lesions along with malignant liver nodules and cirrhosis have been most satisfactorily identified.

Most of the writers on the subject of peritoneoscopy are enthusiastic supporters of the method. Ruddock,^{16, 17} an internist, has had by far the largest experience in the field. He reports in his series of over 1000 diagnostic cases, an accuracy of 93.6 per cent against a clinical accuracy in the cases submitted of 61.4%. He lists an unusually wide variety of diagnoses of which the more common are peritoneal adhesions, carcinoma of the ovary, carcinoma of the stomach, chronic cholecystitis, cirrhosis of the liver, fibroid uterus, hemoperitoneum, metastasis of the liver, pelvic inflammatory disease, retroperitoneal tumor, carcinoma of the liver, ovarian cyst, tuberculous peritonitis and peritoneal implants.

Extra uterine pregnancy is rarely diagnosed before rupture. In two of my cases of suspected tubal pregnancy, peritoneoscopy revealed several small paraovarian cysts in one case and negative findings in the second. The diagnosis often presents considerable difficulty even after intra-abdominal hemorrhage is present. Peritoneoscopy in this type of case was of inestimable value, laparotomy following immediately after positive findings.

In a critical survey of 50 cases Thieme²¹ concluded that peritoneoscopy was safe and inexpensive and supplied much of the information usually gained by laparotomy. According to Flocks⁴ the greatest value of the method is in cases of cirrhosis of the liver, splenomegalia, malignancy of the liver, suspected abdominal malignancy, identification of unknown masses, ascites of unknown origin, tuberculous peritonitis and chronic conditions involving the pelvis in both sexes.

In the report of McHardy⁸ the examination provides visualization, aspiration, biopsy, cauterization, coagulation and radon seed implantation. A wide experience in the use of the instrument is necessary before such extensive use. Beling,² Ruddock,¹⁷ Spangler,¹⁸ and others, all agree that the chief danger lies in over-enthusiasm and lack of careful observance of indications and contra-indications. A compiled list of the more commonly accepted indications and contra-indications is presented as follows:

INDICATIONS

1. Exhaustion of all other diagnostic means available.
2. Definite purpose before examination carried out.
3. Diseases of the liver and spleen including the syndromes of biliary tract pathology, primary liver disease, enlargements of either or both liver and spleen of unknown cause.
4. Identification of masses in the abdomen including differentiation between intra-abdominal and mural lesions.
5. After clinical diagnosis of malignancy, examination for biopsy desired.
6. Ascites of unknown etiology.
7. Gynecological diagnoses including ectopic pregnancies and operability where vaginal hysterectomy is contemplated.
8. Occasionally in cases of suspected tuberculous peritonitis.
9. Very cautiously in some acute conditions but only when prepared to follow immediately with laparotomy.

10. Determination of operability of carcinoma of the stomach.
11. Internal hernia.
12. Substitute for autopsy.

CONTRA-INDICATIONS

1. Severe cardiac or pulmonary disease.
2. Marked cachexia and weakness.
3. Intestinal obstruction where distention is present.
4. Acute intra-abdominal inflammation.
5. Active bleeding from the gastro-intestinal tract.
6. Extensive intra-abdominal adhesions and multiple operative scars.
7. Stab or bullet wounds of the abdomen.
8. Rigid, well developed, abdominal musculature.

COMPLICATIONS

1. Perforation of viscera.
2. Subcutaneous emphysema.
3. Hematoma in abdominal wall.
4. Intra-abdominal bleeding following biopsy.
5. Hernia through incision.
6. Shock in debilitated patients.
7. Transitory postoperative shoulder pain.

Operative procedures have as yet not been generally satisfactory. However, such men of experience as Ruddock have sectioned intra-abdominal adhesions. Improvement in lung collapse has been said to follow severing fibrous bands between the liver and diaphragm. Liver abscesses have been drained and Benedict reports decompression of a large ovarian cyst in a debilitated patient. Aspiration of ascitic fluid has been a common practice. Because of the danger of bleeding I have rarely taken a biopsy. It is never taken from the hollow viscera. Even though careful and thorough coagulation is carried out, in the hands of the occasional operator, safety lies in doing as few biopsies as possible.

Indications number one and two sum up the most essential axioms in peritoneoscopy; namely, insurance of exhaustion of other diagnostic means and conception of a definite purpose to be achieved. As R. B. Hope⁵ made the statement, "the procedure is not to be used as a short-cut to a diagnosis nor is it intended to replace surgery." After clinical data have been carefully considered and a definite diagnosis still is lacking, peritoneoscopy or laparotomy may be justified. If peritoneoscopy has a reasonable chance to satisfy what is expected of the major procedure, then it is a most worthy substitute.

Two cases selected at random will demonstrate the efficacy of this statement.

Mrs. B. was a poorly nourished white female of 48 years, whose chief complaints were loss of weight and weakness. After extensive clinical and laboratory investigation, no diagnosis was made. There was a definitely palpable epigastric mass. At peritoneoscopy a markedly enlarged mid-liver projection was seen. No evidence of malignancy was found. The patient returned to health on high vitamin therapy.

An epigastric mass in a poorly nourished white female of 61, presented a diagnostic problem. All clinical investigations were negative. By peritoneoscopy no intra-abdominal mass was found. During the examination, transillumination showed the mass deep in the abdominal wall. Exploration of the intra-mural mass revealed a cold abscess.

An occasional useful and resourceful indication is the case of the autopsy, the permission of which has been refused. Peritoneoscopy may contribute the essential information and very desirable biopsy material through a tiny inoffensive incision.

I have been pleased with the results of inspection of the female pelvis preliminary to vaginal hysterectomy. This procedure has been particularly helpful in obese women in whom bimanual examination is unsatisfactory. Operability by the vaginal route has often been difficult to ascertain accurately by other means. Reassurance regarding this method of attack has been gratifying in two of my cases.

The contra-indications as listed are, for the most part, selfexplanatory. It is important to use a minimum of sedation in the more cachectic and debilitated patients. Pneumoperitoneum should be slowly effected and careful observation of the patients blood pressure, pulse and color noted. No patient with any type of acute pulmonary involvement should be subjected to the examination. Active bleeding from the gastrointestinal tract is a contraindication both on the grounds of danger of increasing the blood loss and probable negative findings of peritoneoscopy.

In spite of meticulous adherence to precautions occasionally complications occur. Undoubtedly the most immediately startling is the perforation of a hollow viscus. Kelling maintained and proved that a normally mobile viscus could not be injured by the gentle steady thrust of

the trocar. The bowel will normally slip away from the instrument. Fixation of a loop at the site of puncture changes conditions such that perforation does occasionally occur. This fact emphasizes the importance of proper selection of the locus of entrance. Should there be perforation of the bowel, as occurred eight times in Ruddock's first 900 cases, the instrument should be left in situ and laparotomy performed at once. No deaths resulted in these cases.

Rather extensive subcutaneous emphysema was annoying in one of my cases but did not cause substantial discomfort. A pressure binder about the abdomen sufficed to improve absorption of the air and the patient was dismissed after one day's added detention. Hot packs over the area of intramural bleeding has taken care of this unusual complication. Fatal intra-abdominal hemorrhage following biopsy occurred in one of Ruddock's early cases. This accident was attributed to insufficient coagulation of the biopsy site. Herniation through the incision, hardly conceivable, but should be considered as a possible sequel to the examination.

Shock in debilitated patients bears consideration. On one occasion I submitted a weak and cachectic patient to the examination. Typical symptoms of impending shock appeared a few minutes following the introduction of the sheath and telescope. The abdomen was at once deflated, the head lowered and external heat, stimulants, et cetera, resorted to. There was no further untoward reaction in this case. It has been my practice to carry on a conversation with the patient during the examination. This has a good psychological effect upon him, at the same time giving a fairly satisfactory index to his general condition and tolerance of the operation.

In contrast to the rather obvious advantages in properly selected cases there are also formidable limitations to the examination. Frequently one must be satisfied with a minimum of information gained. Peering through a small eye piece which becomes easily fogged, at organs ten or more inches distant meets with difficulties. Visualization of the presenting surfaces of the viscera and peritoneum is achieved. In most instances this is an interesting sight but often difficult to evaluate. The bright lighting in the abdomen gives an abnormal brilliance and its reflection on the peritoneum makes accurate

evaluation of colors a real problem at times. Should the light intensity be diminished, clarity of vision is often correspondingly hampered.

Some deft operators are able to examine the folds of the bowel and other obscure parts of the abdomen but usually no reliable information is obtained from delving among the coils of bowel. Retroperitoneal masses are diagnosed only by deduction. If the mass be palpable previous to peritoneoscopy and the viscera appears elevated and pushed forward, a retroperitoneal mass is assumed.

Unless intravisceral lesions have tell-tale surface manifestations, peritoneoscopy will not be enlightening. Intrinsic stomach or duodenal lesions, including gastric or duodenal ulcers, are better suited to roentgen examination and gastroscopy. In neoplastic lesions other than in ascertaining the presence or absence of metastatic nodules, peritoneoscopy has been of no practical value in determining operability. This is easily understood when it is realized that it is often difficult to decide upon operability with the lesion accessible through a large laparotomy wound.

In conclusion, I have attempted an unprejudiced evaluation of a relatively unused procedure. All of us have surgical patients treated unsuccessfully, prominent among these are the inoperable malignancies, whose demise has been hastened by exploratory laparotomies. Many of our preoperative diagnostic uncertainties can be eliminated by the judicious use of the peritoneoscope.

The procedure is simple and of a definitely surgical nature, being peculiarly suited to the surgeon with a practical knowledge of living, gross pathology. The most common diagnosis in my experience has been that of carcinomatous metastases. Indications, contra-indications and complications have been discussed. Peritoneoscopy, if done in selected cases and with a definite purpose in view, is recommended as successful and fruitful of gratifying results in the hands of the general abdominal surgeon.

DISCUSSION

Dr. Frank DeTrana, Chicago: Dr. Rogers' presentation was of particular interest to me because Dr. Leroy H. Sloan and myself just finished a series of a 120 peritoneoscopic examinations at the Cook County Hospital and at the Illinois Central Hospital.

Dr. Rogers covered the subject very well. Our cases were mainly medical. As a matter of fact, out of 120, forty-four were patients who had ascites. The ascites could be relieved and the etiology determined by peritoneoscopy. We feel that in cases of ascites, peritoneoscopy is safer than ordinary paracentesis. If one should run into difficulty, such as perforation of a viscus, with a peritoneoscope he would know it. In one case that was particularly interesting, the patient had an ascites of several years' duration. She had repeated paracenteses. Peritoneoscopy in this case revealed that an ovarian cyst was being tapped. It was later removed surgically. We feel that peritoneoscopy in that case was of particular benefit.

In several cases we have seen metastases in the liver from a carcinoma of the stomach and thus eliminated several exploratory operations.

Dr. Robert E. Reagan, Benton Harbor, Michigan: Dr. Rogers has given us a clear, concise picture of the present status of peritoneoscopy. He has reviewed briefly the literature and has described the technique in detail. He has been not overly enthusiastic or unduly pessimistic of the limitations of the procedure. I concur with the indications and contra-indications as outlined. Improvements in the instruments used in peritoneoscopy are needed badly and will be developed undoubtedly from time to time. An examining telescope with a larger field of vision and less distortion must be developed before peritoneoscopy attains a wider usefulness. I am sure that this is possible. I use a smaller trocar than the large insulated Ruddock trocar commonly used. The small trocar has the advantages of ease of introduction, less trauma to the abdominal wall resulting in less postoperative discomfort and less danger of hernia. I have experienced no complications such as mentioned by Dr. Rogers. I have been endeavoring for some time to develop a finger on the end of the examining telescope which would retract omentum and bowel. Something along this line will increase the usefulness of the peritoneoscope. Frequently a small piece of omentum or loop of bowel will hide completely the lesion we are anxious to see.

In addition to the indications which Dr. Rogers has outlined I would like to mention those resulting from internal injury following accidents. Peritoneoscopy is a simple procedure. It can be advised earlier and with less indication than a laparotomy and by early recognition of injury to the abdominal contents surgery can be done at a time when it will do the most good. We have had two football deaths in our community resulting from kicks in the abdomen in which the bowel was torn and the condition not recognized until a generalized peritonitis had developed. I am convinced that had peritoneoscopy been used much more could have been done. I will report briefly one case in which a young factory worker was hit in the upper abdomen with a block of wood. The pulse rate was seen to increase during the first night and early morning of the second day. When peritoneo-

scopy was used a necrotic area on the jejunum was found and immediate surgery carried out.

Joseph E. Hamilton writing in *Surgery* advised this method in gun shot and stab wounds in which it is not clearly established that the peritoneum has been perforated. If the wound clearly enters the abdominal cavity peritoneoscopy is contra-indicated but in borderline cases it is advised. Hamilton introduces the peritoneoscope into the abdomen and then passes a Kelly forcep or other blunt probe into the wound. If the wound has entered the peritoneal cavity it can be seen easily through the peritoneoscope. Other signs of injury such as hemorrhage are obvious. Peritoneoscopy has been of some value in differentiating mesenteric thrombosis from intestinal obstruction.

By the use of peritoneoscopy I have been able to place incisions directly over lesions and thus give adequate exposure without unduly large incisions.

After doing approximately one hundred and fifty peritoneoscopies with no complications and with considerable diagnostic information obtained, I feel that the method has a definite and increasing role in the diagnosis of obscure abdominal conditions. It has certain limitations but when used wisely will bring some cases to surgery earlier and will prevent needless laparotomies on others.

Dr. W. J. Gillespie, Effingham: I would like to ask what kind of a table you use and how you rotate these patients while doing the examination.

Dr. J. C. Thomas Rogers, (in closing): The type of table employed is the usual type for general surgery. It should be a versatile table, — one that can be tipped down or up, and from side to side.

The technic is carried out in a strictly surgical manner in the operating room.

I wish to emphasize that I am approaching this subject from the standpoint of a general surgeon. Reluctance in accepting this relatively new procedure on the part of the surgeon is not surprising. Medical men are prone to skepticism until new methods have been well proven.

The use of the peritoneoscope in certain selected cases has a very definite role. If the indications are carefully adhered to, successful results are obtainable. The technic of the examination can be easily learned by the experienced abdominal surgeon.

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VOLVULUS OF THE CECUM

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One of the most important etiological factors in volvulus of the cecum and ascending colon is an abnormal mobility of these organs. This abnormal mobility is a prerequisite of the development of a volvulus in this part of the intestinal tract, the degree of mobility being proportioned to the length of the mesentery. In some cases, the ascending mesocolon may be continuous with the mesentery of the small intestine, resulting in the condition described as "mesenterium commune." Most authors agree, that failure of the embryonic mesentery of the cecum to adhere to the posterior peritoneum is the cause of a roving cecum or more commonly referred to as a mobile cecum. Harvey, reporting his findings in 105 necropsies in infants, states he found abnormal mobility of the cecum and lower two-thirds of

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the ascending colon in 13.3% of his cases. Piersol, 14% in his series and Smith, 31%, while a marked mobility is present in probably as high as 25% of persons of all ages; in only 1% according to Wandel, does this extend up to or beyond the hepatic flexure. When present, a mobile cecum is not only a prerequisite, but a potential source of torsion — depending upon other concurrent causes, the more important of which are: inflammatory changes in the mesentery, overdistension of the cecocolon by gas, dietetic errors, drastic catharsis, and an enlarging pregnant uterus.

Torsion develops usually in a vertical axis with rotation in a clockwise direction. If the torsion is less than 180 degrees, the obstruction may not be complete and the circulation to the cecum and ascending colon only be partly interrupted. However, if the torsion is more than 180 degrees, the obstruction will probably be complete and the bowel becomes gangrenous unless prompt surgical relief is instituted.

Many authors divide their cases into acute and chronic, their symptoms varying and depending upon several factors. In the acute group, especially when there is a large amount of small intestine involved and a marked degree of torsion, the symptoms are severe abdominal pain, shock, and collapse, with death occurring in a few hours, many times before a diagnosis can be made.

In the more chronic cases, the symptoms given are more obscure and are related to intermittent obstruction, such as a history of attacks of sudden epigastric pain, vomiting, and constipation. These attacks occur quite frequently over a number of years.

The symptoms seem to be the result of partial volvulus that corrects itself. Later a more complete volvulus takes place and unless operated upon, is fatal. Treatment is surgical. In the early cases, where there has been no damage to the intestine, careful detorsion with fixation of the cecum to its normal position to prevent recurrence is all that is needed. In my case, this was impossible due to the size of the uterus. In more advanced cases, relief of the obstruction, possible resection of a gangrenous bowel, and drainage of the bowel above the point of obstruction, or the same principles that apply to intestinal obstruction in general are the procedures.

N. M. Dott, in his splendid monograph on anomalies of intestinal rotation and fixation, states that, "Errors of rotation and fixation are largely confined to the second stage of rotation," and also, according to Dott, are "namely due to a lax or large umbilical orifice, allowing the midgut to return to the abdomen in some sequence other than normal."

The case that I am reporting falls in the second stage in which rotation through 90 degrees occurs in clockwise direction, the transverse colon being brought to cross behind the superior mesenteric artery close to its origin, the duodenum crossing the vessel at the same point anteriorly. The intestines, apart from this, occupy their proper positions except the duodenum lies anterior to the transverse colon instead of posterior to it and fixation of the cecocolon is not normal.

In reviewing the literature, I was only able to find a few cases with x-ray studies, although there are many studies and case reports on this subject. I also had the unusual opportunity of a second look in this abdomen, three months later when a Caesarian Section was done. This afforded an excellent chance for study of the embryonic anatomical pathology of the bowel.

Case Report: Mrs. L. S., 22, white, married, housewife, was brought by ambulance to Passavant Hospital on November 15, 1940, complaining of generalized abdominal pain and pain in the right lumbar region. She is in the fifth month of her first pregnancy. She had a moderate amount of vomiting up to the end of the second month and then had been free of vomiting until four days before admission to the hospital, when she experienced colicky pains in the epigastrium associated with nausea and had in the last six hours, vomited a number of times. Her bowels moved normally 24 hours before admittance to the hospital.

Her family history is negative. In the past history the significant thing was that in 1939, she had what was thought to be an attack of appendicitis or pyelitis, but more probably was an incomplete volvulus that corrected itself as it subsided in a few days. The attack was associated with mild urinary bladder irritation. Physical examination reveals a small, acutely ill, white female, in the fifth month of pregnancy, who is complaining of diffuse pain in the abdomen. Pupils react to light and accommodation, equal in size and shape. Nose and throat are normal. Neck is negative. No rales heard over the chest. Heart was normal. Examination of the abdomen revealed moderate distension. The uterus was about a centimeter and a half below the umbilicus. There was particularly noted epigastric distension and on percussion, tympanites could be elicited across the whole upper ab-

domen. No evidence of hernias or palpable masses other than the uterus. Nor was there evidence of rigidity. Definite muscle guard, however, was obtained on deeper palpation. Vaginal examination revealed a firm cervix. The uterus was the size of a 5 to 5½ months pregnancy and the adnexa seemed normal. Patellar reflexes were normal.

Her temperature was 98.4, pulse 92, respirations 22. Kidney function: total intramuscular, P.S.P. 25%. Differential urinalysis: right kidney: albumin 2 plus, pus negative, bacteria negative. Left kidney: albumin negative, pus negative, bacteria negative. Kahn test was negative. Cultures from both kidneys negative. Blood count revealed: hemoglobin 78%, color index .9, erythrocytes 3,720,000, leucocytes 8,250, small lymphocytes 24%, large mononuclears 10%, neutrophils 62%, stabs 5%.

Due to her past history, I felt that a pyelitis associated with hyperemesis gravidarum had to be eliminated in her deferential diagnosis, so that catheters were put into both ureters and x-ray pictures taken. My lantern slides of these pictures will show that a kink in the right ureter was found about three centimeters below the pelvis with moderate dilatation of the calyces and pelvis on the right side and that the left side was normal. These x-ray pictures also revealed a large distended segment of bowel, and since her vomiting became more profuse, a Levine tube was passed into the stomach and Wagenstein apparatus attached to it, but failed to help her epigastric distension. Barium was given by mouth and demonstrated the stomach independent of the large gas distended bowel. Barium enema was also given, which revealed an obstruction at the splenic flexure of the bowel. Diagnosis was made of intestinal obstruction involving the transverse colon and immediate operation was done.

OPERATION: The patient was given spinal anesthesia and 500 cubic centimeters of blood was transfused during the operative procedure. The abdomen was opened through a right rectus incision about a centimeter and a half to the right of the midline. On entering the peritoneal cavity, about 500 c.c. of dark sero-sanguineous fluid poured out of the abdomen. The obstructed bowel was dark. There was some separation of the longitudinal fibers of the colon. Due to marked distension, it was impossible to deliver the bowel from the abdominal cavity without first aspirating it. This was done using a small caliber needle and syringe, and when the bowel was empty, I found that this segment of bowel was the cecum and ascending colon turned on itself and twisted on its mesentery through approximately 270 degrees. The volvulus was in a clockwise direction and the cecum was lying in the left hypochondriac region over the spleen. Simple detortion of the bowel and return to as near normal position as possible was done. Hot saline towel returned quite good color to the bowel. The appendix was taken off without difficulty and a small caliber rubber tube was put into the cecum and carried out through the incision. Due to the size of the uterus, it was impossible to get the cecum into the normal posi-

tion. On close inspection of the proximal one-third of the transverse colon, it was found that it lay behind the duodenum and that this point was the axis of the volvulus and the mechanical obstruction. There seemed to be adequate room for normal function of the bowel in this area after the cecum and ascending colon were returned to the right side of the abdomen. The general peritoneal cavity was closed without drainage and the cecostomy tube was brought out through the incision. She was given a second transfusion the following day and Wagenstein apparatus was left in place through the operative procedure and for three subsequent days. The cecostomy tube was removed on the fourth day. Its wound closed on the twelfth day and she was discharged from the hospital on the sixteenth day, having a very smooth course after the fourth postoperative day.

She was again admitted to the hospital on February 24, 1941, for Cesarean Section. She stated that she had gotten along fine since she left the hospital. Classical Cesarean Section was done without difficulty, delivering a living 6½ lb. female child. Bilateral salpingectomy was done at this time. Careful study of the bowel anatomy was made and found that the cecum was fixed to the anterior parietal peritoneum on the right side, but quite high. The lumen of the transverse colon was quite large and surely seemed adequate for normal function where it tunneled under the duodenum. There was no fixation of the cecum or ascending colon up to the hepatic flexure. The abdomen was closed after this exploration. She made an uneventful recovery after Cesarean Section.

Barium enema was given for x-ray study of her colon on April 26, 1941, and showed a bowel that is functioning normally. In conclusion, I wish to emphasize that pregnancy is one of the possible precipitating factors in volvulus of the cecum.

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EATING ICE

"Many persons experience bowel cramps and gas in the abdomen when they eat or suck ice," *Hygeia, The Health Magazine* says in answer to an inquiry as to whether eating or sucking ice is injurious to the health. "Especially in hot weather, or after strenuous exercise, taking large amounts of any ice-cold liquid is not advisable. As long as no particular symptoms are observed the problem would seem to be one of personal taste. Some persons can tolerate moderate amounts of ice without harm."

SUSCEPTIBILITY TO PARALYSIS IN POLIOMYELITIS

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The practicing physician will, on the average, not so often be called upon to see a patient with poliomyelitis. Many times the case is the first in the experience of the doctor of the community, and the epidemic the first in the experience of the health officer. But all will almost certainly be called upon to answer questions about the disease. "Have they isolated the germ? How does it spread? Shall we take the children to the country? May they go in swimming? Should we peel the fruit or boil the milk? Is there a vaccine? Should serum be used? Should we close the schools — but not the movies?"

It would therefore seem to be of more general interest to discuss the present status of the poliomyelitis problem as a whole, rather than the details of diagnosis and treatment, which can be found in a number of texts or are already well known. For example, all are now familiar with the rule of thumb for suspecting poliomyelitis, rigidity of the spine.

Many diseases are over with in short order, but in poliomyelitis all too often permanent paralysis remains as a constant reminder and constitutes a long and tedious régime of after-care, perhaps mainly directed toward the prevention of what may be called secondary crippling, resulting from deformities and contractions. Then, again, there is always uncertainty as to where the disease will strike, and unexpectedness when it does appear. When untoward events occur one at a time, we grow accustomed to them, but when they come all at once, as in an epidemic, they are far more alarming. These features of the disease are probably responsible for the extraordinary degree of apprehension concerning it, and although a relatively uncommon disease, there is a pressing demand for more satisfying knowledge. As a result, poliomyelitis has been more widely studied than many far more common or more devastating diseases to which we have accustomed ourselves.

In rabies, the dog bite; in psittacosis, the parrot; in measles, exposure to a case; in typhoid, contact with a carrier: all are observed with such regularity that they point at once to the origin of the sickness and lead to at least the satisfaction of understanding, and to reassuring precautionary measures. But in poliomyelitis, no single observation sets the trend in thought and investigation. Any theory receives attention. The result is we have an accumulation of a great variety of observations, clinical, epidemiologic and experimental. Many are on a fairly firm basis and are sound; many are not much more than notions; and many are in direct conflict. But all are stressed equally. Moreover, the sparseness of the disease and the limited techniques available for experimentation have too often restricted observations or experiments to such small groups that no distinction can be made between significant observations and incidental findings. This inability to discriminate makes it difficult to formulate from the mass of data any generally acceptable concept of the behavior of the disease. As a result, each worker, from his own observations, no matter how few, tends to generalize and to form his own concept of the behavior of the disease. The fewer the observations, the more convinced an observer can be of his particular hypothesis. There seems to be a preference for more plausible and hopeful hypotheses, or for those which match in oddness the vagaries seen in the occurrence of the disease.

Under the urge of the demand for precise knowledge in poliomyelitis, we have explored possibilities which have not been considered in other diseases. For this reason, we sometimes find ourselves "out on a limb." We have extended observations in poliomyelitis beyond the range of interpretability in the light of knowledge of disease in general. For example, recent studies of the virus in intestinal contents is proving to be a very useful procedure in one way. It is verifying earlier but more indirect evidence of widespread distribution of the virus. But the finding does not, in itself, constitute sufficient grounds for generalization in regard to the mode of spread of this disease. In pulmonary tuberculosis, bacilli may be found in intestinal contents; hemolytic streptococci appear both in throat and intestines; and no one pauses

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to question whether measles virus, for example, may not likewise be present in intestinal contents.

Where recognizable disease is the regular outcome of exposure to its virus, the pathways of the virus can be determined from the distribution of the disease it produces alone. But where the virus does not always cause recognizable disease, the pattern of disease distribution may differ very much from the pattern of virus distribution, and any deduction from one in regard to the other may be misleading. From the mass of accumulated findings, a number of observations — clinical, epidemiologic and experimental — come together with such consistency that they afford conclusive evidence that such is the case in poliomyelitis.

The frank paralytic disease is uncommon, perhaps a fair estimate being that not more than one out of a thousand persons ever develop it. But, in addition to the paralyzed cases, there are nonparalytic cases and mild suspected abortive forms. We now know, too, that there is a widespread immunity which develops in those who give no history of having anything suspected as an attack of the disease. When added to the scattered distribution of the clinical disease, the results of immunity tests, which are comparable with the figures in the Schick test in diphtheria, show that the virus must be very widespread. We must say, then, that the paralytic disease among those exposed to the virus is of very limited and selective occurrence. This epidemiologic concept, having its beginnings in the field studies of Wickman and Caverly, with better diagnosis of milder forms and improved methods of virus detection, is now becoming increasingly clear.

It now appears that paralysis occurs not in just any, but in a selected few of the many who are exposed to the virus; and that some added circumstance must determine this exceptional outcome of exposure. Since paralysis is the one serious consequence of infection with the virus of poliomyelitis, the identification of the added circumstance which determines paralysis constitutes a major question looking toward practical control. In other words, gains might be made if, instead of continuing to center epidemiologic studies on the mode of spread of the virus, attention were directed to what we might

term the epidemiology of paralysis in poliomyelitis.

Let us examine the various theoretical approaches to control in the light of these epidemiologic considerations. For discussion, these measures may be divided into therapeutic, bacteriologic, immunologic; and, finally, those measures aimed not directly at the infection itself but against undesirable complications or sequelae of the disease.

Some of these approaches having been well tested may be examined in retrospect, while others can be viewed only in prospect, as they suggest lines of study still before us.

Therapeutic Control: Therapeutic measures would have the advantage, numerically speaking, of being aimed directly at the few who develop clinical disease among the many exposed to the virus. In earlier times, a more prominent feature of poliomyelitis was the serious secondary crippling resulting from contractures and deformities accompanying growth under constant unequal muscle balance. This undesirable sequel of poliomyelitis has now, to a large extent, been ameliorated through the operative correction of these deformities, and in recent years through prevention by means of continuous orthopedic treatment. But from the nature of the lesion causing paralysis, there is no prospect of curing it after nerve cells have been destroyed. Any attempt to prevent destruction of the nerve cells must be made early in the acute disease.

From a theoretical and experimental point of view, the one rational attempt at specific therapy has been the use of immune serum. It has long been known that the blood serum of persons recovered from the disease and that of animals convalescent from the experimental disease have a neutralizing action upon the virus. This led early to the treatment of cases with convalescent serum. For years, patients were for the most part treated after the appearance of paralysis, with inconclusive results. Later, the use of immune serum during the preparalytic stage of the disease was employed. At the outset, it was realized that there would be difficulty in predicting the outcome of cases seen in the preparalytic stage — none of the signs or symptoms giving any indication as to severity. In the first few years of preparalytic serum therapy, the average outcome of cases treated was so favorable as com-

pared with any known series of untreated cases, that it was believed that serum was of value. But when preparalytic serum therapy was later applied in control series of cases, it was found that the apparent beneficial effect of the serum was due in reality to the uncovering, by reason of early diagnosis, of mild, non-paralytic forms of the disease. Serum therapy has now been largely abandoned.

Bacteriologic Control: Just as the central idea in epidemiology has been the mode of spread of infectious agents, the central idea in the control of infectious disease has been the prevention of the spread of infectious agents. There are many examples of satisfactory control of disease through measures directed toward this end. But this has been especially true in those diseases where the infectious agent is transmitted indirectly from person to person — malaria, typhoid fever; and less true where the infectious agent is transmitted directly from person to person through ordinary human habits — measles.

The bacteriologic control of poliomyelitis would consist in destroying the infectious agent at its sources, or preventing its spread from them. Since it has become clear that the source of virus is largely healthy persons, judged from the fact that its spread is well-nigh universal, it would seem unlikely that any of the usual attempts to curtail the spread of the virus would succeed, such as for example, the isolation or quarantine of cases or carriers; if for no other reason but because of the fact that recognizable cases comprise but a small fraction of the spreaders of the virus, and that for the most part those who have played a part are not detectable.

Immunologic Control — Passive Immunization: The demonstration of the power of convalescent serum to neutralize the virus of poliomyelitis in the test tube has been consistently pursued in connection with control of the disease. Having failed to exert a curative effect on the disease after paralysis had appeared, and in the preparalytic stage of the disease as well, it has been advocated as a prophylactic measure. But even if it be assumed that convalescent serum has the same action, for example, as diphtheria antitoxin, epidemiologic considerations render it unlikely that, from the practical point of view, it could be utilized to any appreciable extent. Thus, the administration of such a measure would have to be closely timed with

reference to exposure. Since the few individuals who develop poliomyelitis do so following no known contact with the virus, and the vast majority of individuals who are exposed do not develop the frank disease, the use of convalescent serum as a prophylactic measure could hardly be relied upon. Furthermore, convalescent serum has not proved of value as a prophylactic in the experimental disease.

Active Immunization. Active immunization by injections of modified virus has been the subject of considerable study. Although it is possible to immunize monkeys in the laboratory by injections of active virus, no vaccine has been found which has a sufficiently high rate of efficacy, and at the same time a sufficient margin of safety for use in the human disease.

Autarceologic Control: Thus, an appraisal of the prospects of the conventional approaches to the control of poliomyelitis as an infectious disease indicates that — as in the case of measles, where there has been a shift from attempts to prevent infection to measures directed against the complications of the disease — studies in poliomyelitis should be centered more on the factors responsible for paralysis in the few of the many infected with the virus. The prevention of paralysis in poliomyelitis would convert what now is a serious crippling or fatal disease into a trivial febrile episode.

The occurrence of paralysis among those exposed to the virus of poliomyelitis is limited, irregular and selective. A number of these selectivities suggest that the major determinant lies in the host, rather than in parasitic factors; and the character of these selectivities gives some indication of the nature of susceptibility to paralysis.

Variation in the frequency with which exposure to the virus results in clinical disease in different climates, and at different seasons in the same locality, is indicated by evidence of uniform dissemination of the virus and equally extensive subclinical immunization, in different climates and in interepidemic periods. This suggests that inherent susceptibility lies in some physiologic process which fluctuates with climate and season, rather than in a fixed anatomic character.

The frequency of multiple cases in the same family and the concentration in lineal and collateral familial lines, all in view of the low gen-

eral incidence of the disease, afford evidence that paralysis is not determined primarily by environmental or parasitic factors, but by an inherited host susceptibility.

A predisposition to paralysis in individuals of an observable constitutional type was foreshadowed by descriptions of many students of the disease, back to Wickman, Heine and even Underwood; and was promulgated as an epidemiologic doctrine by Draper. This observation, now concurred in by many observers, long antedated the epidemiologic indications that the selectivity in the occurrence of paralysis is determined by influences in the exposed, rather than exposure. Difficulties in clearly establishing this proposition lie in the fact that it falls far short of universality. However, the frequency with which observable manifestations appear in poliomyelitis individuals at the pre-pubertal period of development — regardless of the age of attack, which appears to be determined by exposure — suggests that the underlying physiologic factor may be, to a considerable extent, subclinical and that it is endocrinologic in nature. But the complexity of the endocrine differences responsible for the changes in growth and development which make up the constitutional type in question do not permit of any deduction in regard to the particular factor which might be involved, or the manner in which it might affect susceptibility.

An impressive body of evidence exists that the nasal mucosa is not only unique among the body surfaces as a direct pathway to the nervous system, but that the virus of poliomyelitis is disseminated in accordance with laws of upper respiratory infection; and that virus carriage in this mucosa and infection by this route have been demonstrated experimentally. All this, together with the significant occurrence of poliomyelitis following surgical interference with the upper respiratory mucosa, implicates this membrane as the locus of susceptibility.

The impression of an epidemiologically significant frequency in the occurrence of poliomyelitis during pregnancy, although not as yet established because of statistical difficulties, in view of known changes in the genital mucosa during pregnancy, due to changes in estrogenic substance — and in which the nasal mucosa participates — suggests that alteration in the latter, which may affect susceptibility, is the

result of an inherent endocrine fault in physiology which has to do with the economy of estrogenic substance.

Changes simulating those occurring during pregnancy in the mucous membranes can be produced experimentally. The experimental effects which are of interest here are thinning of the vaginal epithelium by castration and recornification by administration of the estrogens to the castrate animals. These changes occur also in the nasal mucosa. Our experience has been that the administration of estrin to castrate animals increases their resistance to intranasal instillation of poliomyelitis virus.

The effect of estrogenic substance on the susceptibility of animals to the experimental disease prompted comparative assays of urinary output of estrin to detect any difference between individuals susceptible to poliomyelitis and normal individuals. With present knowledge, the only approximation which can be made is a comparison between those who have had poliomyelitis, and who presumably would still be possessed of the inherent endocrine fault determining susceptibility, and individuals of corresponding ages who have not passed through an attack of the disease. The latter would include an unknown proportion of susceptible individuals who have not had the disease because they have not been exposed to the virus, or perchance were exposed at a time when their fluctuating susceptibility was not operative.

The estimation and evaluation of urinary estrogen present difficulties. Such a hormone may be in either a free or combined state, manifesting varying degrees of biologic activity, the free hormone being more active. Even in the same individual, there is considerable fluctuation in estrogenic content. Attempting to make allowance for such variables, we have done urinary assays on poliomyelitis patients and an equal number of individuals of corresponding ages who had not had poliomyelitis. The specimens were collected in a school for crippled children, where about half the patients were poliomyelitis cases and the remainder crippled from other diseases of various kinds. Twenty-four urine specimens were collected in pairs from children six to twenty years of age. Determinations were done by benzol extraction and the vaginal smear method in mice. The amount of estrogen in the

urine of poliomyelitis patients varied from 5 to 240 mouse units, while in the controls it was 3 to 96 mouse units. The average content of the urine of poliomyelitis patients was 21.7 units, that of the controls was 12.7 units.

These estrogen assays were made on chronic cases, so the status at the time of the test does not necessarily reflect the condition of the patient at the time of the attack of poliomyelitis, which in these individuals had been from one to 20 years previously. Neither is there anything to show that the endocrine condition indicated is not a sequela to poliomyelitis. However, in view of the epidemiologic considerations presented in this paper, we are inclined to interpret the results as reflecting a physiologic condition which already existed at the time of the attack, although the figures cannot be considered conclusive because of the wide range of variability between individuals even of the same age. In view of the enhanced resistance to intranasal instillation of the virus observed in castrate monkeys treated with estrogens, the finding of a higher average excretion of estrogenic substance in the group of poliomyelitis patients suggests the possibility that the endocrinopathy sought as the basis of autarceologic susceptibility does not lie in a simple deficiency in the elaboration of estrogenic substance, but rather in some discrepancy in its economy.

These observations represent the beginnings of a study of the epidemiology of paralysis in poliomyelitis, made in an attempt to shed some light on the nature of that circumstance which, when added to infection with the virus, makes for the occurrence of paralysis. Such studies may point the way to measures aimed at the correction of susceptibility to paralysis, in the hope of converting what is for the few a severe and disabling disease, into what is for the many a trivial febrile episode.

A tuberculin reaction provides invaluable information for it furnishes the trail which one may often trace to previously unknown and wholly unsuspected sources of infection. J. A. Myers, M.D., Amer. Rev. of Tuber., Feb., 1941.

Surgical collapse measures do not cure tuberculosis; they simply enhance rest treatment and permit patients to be discharged from the sanatorium in better condition and with more assurance that they will remain well and useful citizens. Chas. K. Petter, M.D., Contact, Feb., 1941.

CONGENITAL HEMOLYTIC JAUNDICE (Spherocytic Jaundice)

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Congenital hemolytic jaundice, as this disease is most frequently called, is a chronic disorder of the blood characterized by anemia, acholuric jaundice, and splenomegaly. Haden has shown quite conclusively that the disease is due to the increased fragility of the spheroidal erythrocytes which are pathognomonic of familial jaundice. A positive diagnosis can only be made in the laboratory by demonstrating the presence of the increased fragility of the red blood cells, and the spherical erythrocytes. The abnormal cell is more easily hemolyzed than the normal biconcave disk, since the sphere has a smaller surface area in relation to cell volume and can undergo less stretching before hemolysis occurs. Since the inherent defect is the spherocytosis, Krumbhaar has suggested that the disease be called spherocytic jaundice.

Spherocytic jaundice was first recognized in the latter part of the 19th century and was fully described in detail in 1898 by Hayem. Later Minkowski and Chauffard demonstrated the familial characteristics of the disease, the increased fragility of the erythrocytes and the large numbers of microcytes and reticulocytes seen in the blood smear. It has been thought that the acquired type of hemolytic jaundice was due to other factors, but today the acquired forms are considered latent cases of familial jaundice which are activated by attacks of various diseases. Naegeli has pointed out various groups of cases which seem to point to the familial type as being inherited as a true dominant character. The disease appears to be more severe on successive transmissions. With the progression from one generation to another it becomes more severe until in the third generation the condition is most distressing and the increased virulence is undoubtedly limited by the death of those affected with the more severe types. Spherocytic jaundice may occur in any race or either sex. It seems to be quite widespread. As a rule it is seen in early adult life. Although it is generally agreed that the spherocytosis is the basic cellular change, there is no known reason

why this occurs. Undoubtedly the activity of the spleen is a secondary change and it becomes overactive with enlargement because of its increased function to destroy these incapacitated cells and remove them from circulation. It can be theorized that splenectomy probably removes a large part of the phagocytic mechanism and the spherocytes then circulate longer, functioning partly, thus permitting the bone marrow to resume normal output. When there is such marked destruction of large numbers of red cells, there necessarily must be a compensatory increased output from the bone marrow. This accounts for the outpouring of reticulocytes into the circulation. During some instances, this demand on the marrow may be so great that there is a collapse with the result that immature red cells and white cells are sent into the blood. When such a crisis occurs, there is seen severe anemia, fever, abdominal pain and accentuated jaundice.

The symptoms and physical findings are to a large degree dependant upon the severity of the disease. In the latent form, there may be no symptoms and the increased fragility of the red cells and spherocytes could only be discovered by a routine examination. Frequently the chief complaints may be weakness and fatigue from apparent anemia. Splenomegaly may also cause pain in the upper abdomen or a dragging sensation of weight. From this it is quite evident that it is possible to see a case of spherocytic jaundice without any of the three diagnostic criteria; that is, splenomegaly, anemia and jaundice. In individual patients seen from time to time, the above mentioned symptoms may be present separately or grouped in the various ways possible. Thus, the laboratory findings are of great importance. The anemia may be mild or severe. The degree of jaundice varies but is as a rule proportionate to the degree of anemia. On the other hand the patient may be "more icteric than sick" (Chaufford). The percentage of reticulocytes varies within wide limits, and nucleated red cells may be found in large numbers. In every case of spherocytic jaundice a blood smear will show many erythrocytes, the diameter of which is much smaller than normal. In all cases suspected of this disease, a wet preparation should be studied. In this the small cells are seen to appear spherical. The average diameter of these cells is from 5 to 6 micra, but the thickness of the cells compensates for the decrease

in diameter so that the volume index is normal or only slightly below normal. The finding most important besides the evidence of spherocytes is the increased fragility of the cells when subjected to the action of hypotonic salt solution. In spherocytic jaundice, hemolysis begins between .6 per cent and .48 per cent and is usually complete at .42 per cent; whereas in normal blood, it usually begins at .42 per cent and is complete at .34 per cent. In other words, as compared to normal blood, the hemolysis is usually complete in the same tube in which it begins in the control. Other laboratory findings which may be found are a high icterus index, highly colored urine due to excreted urobilinogen and urobilin, and increased color of the stools for the same reason.

The case reports which are to be presented in detail are of members of the same family, the mother, 2 children by her first marriage and 1 child by her second marriage. Splenectomy has been performed upon each of these for the treatment of spherocytic jaundice. The remaining members of this family have been investigated and 2 additional cases of spherocytosis have been found. Both of these individuals have occasional attacks of jaundice, but no other symptoms or signs have been demonstrable.

CASE I. A. S., a 46 year old married white woman was admitted to the hospital because of shortness of breath and general weakness. The patient's present illness dated back approximately 20 years during which time she had had frequent attacks of vaginal bleeding. During this period, there had been 3 occasions when the hemorrhage was more profuse, and shock developed. At these times it was found that the patient had so severe an anemia that blood transfusions were necessary as life saving measures. One year before this admission, the patient became comatose following a minor infection; and at that time it was likewise found that there was a profound anemia which required transfusions. In the months that followed, her condition was fair. Two weeks before her present admission to the hospital, she began to have rather severe vaginal bleeding. This was in spite of the fact that her last menstrual period was 1 year previous. The bleeding stopped after a week of profuse flow. The patient stated that in the 4 months immediately prior to this admission, she had had severe pain in the left upper abdomen and flank. This patient is the mother of the following 3 cases which will be reported.

Physical examination showed a well developed and well nourished woman 46 years of age who had a peculiar yellowish tinge to the skin. The sclera were

icteric. The heart was slightly enlarged to the left. There was a blowing, systolic murmur heard at the apex. The blood pressure was 116/60. There was a large mass in the left upper quadrant of the abdomen. This extended down to the iliac crest and slightly to the right of the midline. A notch could be felt in the mesial border. The liver was enlarged and extended 3 fingers' breadth below the costal margin. Pelvic examination was negative. Laboratory data: hemoglobin, 59 per cent; red count, 3,110,000; white count, 6,600; platelet count, 300,000; reticulocytes, .6 per cent; fragility, initial hemolysis .72 per cent, complete .50 per cent. Splenectomy was carried out on January 20, 1940. A large firm spleen was removed. The gallbladder was found to be chronically inflamed and surrounded by many adhesions. There were stones palpable in the gallbladder. No accessory spleens were found. The patient made an uneventful recovery following operation. The icteric tint of the sclera and of the skin disappeared within 2 hours after operation. Pathological examination of the spleen showed the typical findings of congenital hemolytic icterus. The weight was 2,463 grams. Since operation the patient has been followed closely. Repeated examinations of the blood show a return to normal level of the red blood cells, but the fragility tests remain much the same as before operation and spherocytes are still found in a fresh blood smear.

CASE II. E. S., a 22 year old single white girl, the daughter of A. S., was admitted to the hospital with the chief complaint of weakness associated with shortness of breath. During the period 4 years previous to this admission, the patient had been in the hospital on several occasions because of severe anemia. On two of these admissions, she showed evidence of an icteric tint to the skin. During these acute attacks, the patient was quite ill, very weak and had difficulty in getting her breath. The red blood count was found at these times to have been 2,000,000 or less. The hemoglobin had been as low as 40 per cent. All of these attacks were apparently preceded by an upper respiratory infection. Past history was otherwise negative.

Physical examination showed a fairly well developed and nourished girl of the stated age who appeared acutely ill. The mucous membranes were quite pale. Examination of the heart and lungs was negative. In the left upper quadrant, a firm mass could be palpated. The lower margin of this mass was at the level of the umbilicus, and a notch could be felt 3 cm. to the left of the midline. The liver edge was palpable 2 cm. below the costal margin. The remainder of the physical examination was not remarkable. Laboratory data: hemoglobin, 32 per cent; red cell count, 1,600,000; platelet count, 135,000; reticulocytes, .4 per cent; fragility, initial .62 per cent, complete .44 per cent. The blood smear showed many microcytes and the wet preparation, spherocytes. An attempt had been made previous to surgical consulta-

tion to control the anemia by means of blood transfusions. However, within 24 hours the red blood count would again return to between 1,500,000 and 2,000,000. After several of these transfusions had been given, splenectomy was advised and accepted. A transfusion was given immediately before operation, and splenectomy was performed. One accessory spleen, 12 mm. in diameter, was removed from the region of the splenic pedicle. The gallbladder was filled with calculi. The patient's immediate postoperative recovery was excellent. Two weeks following operation, the patient complained of severe headaches. Several days later, the patient had a generalized convulsion which cleared up immediately and left no evidence of residual paralysis. During this period, the patient's platelet count was in the region of 1,000,000 or above and it was thought probable that she had had a thrombosis of a cortical vessel. Pathological examination showed a spleen weighing 1915 grams with the microscopic characteristics of congenital hemolytic jaundice. Since operation the hemoglobin and red cell count have been within the range of normal. There has been no recurrence of jaundice. However, the patient has shown increasing evidence of nephritis as shown by the urinary findings.

CASE III. G. S., a 21 year old single white male entered the hospital because of severe pains in the left side which had been present for 2 years. He is the son and brother of the above 2 cases. During the past year, the pain in the left upper abdomen had been of such severity as to keep him from his employment. The patient also complained of frequency of urination, and a complete urological examination had been carried out because of this. Nothing abnormal had been found.

Physical examination showed a fairly well developed, white male of the stated age with an icteric tint to the sclera and skin. The patient had the appearance of a chronic illness. Physical examination was negative with the exception of the local abdominal findings. A mass could be palpated in the left upper quadrant. This extended 3 cm. beneath the costal margin. The liver was not palpable. Rectal examination was negative. Laboratory data: hemoglobin, 95 per cent; red cell count, 4,660,000; platelet count, 370,000; reticulocytes, .4 per cent. A blood smear showed many microcytes and a wet smear showed spherocytes. Initial hemolysis occurred at .68 per cent and was complete at .44 per cent. Splenectomy was performed on November 29, 1939. A rather large spleen which was quite firm was removed. There was no evidence of an accessory spleen. The gallbladder was normal in appearance and to palpation. The patient's postoperative course was uneventful with the exception of bronchial pneumonia which responded to specific therapy. The spleen weighed 945 grams and microscopic sections showed marked congestion of the pulp. One year following operation, the patient complained of pain in the left elbow. X-ray examin-

ation at that time showed a destructive process in the left radius and similar destructive processes in various bones of the body. A biopsy of the head of the left radius was taken and a tumor was found which proved to be a papillary adenocarcinoma. In spite of careful investigation by all types of examination, the primary site cannot be found.

CASE IV. D. S., a 5 year old white boy, the son of Case I and the half brother of Cases II and III, was admitted to the hospital because of recurrent attacks of abdominal pain. These attacks of abdominal pain always occurred following an upper respiratory infection. During these attacks, the patient became nauseated and vomited. There was marked abdominal distention and a very large increase in the size of the spleen. The child had had an icteric tint to the sclera. Examination showed a fairly well developed child of the stated age whose skin had a peculiar pallor. The abdomen was protuberant. The spleen could be palpated 2 fingers' breadth below the costal margin. The liver was enlarged and could be palpated a finger's breadth below the costal margin. Laboratory data: hemoglobin, 74 per cent; red cell count, 3,730,000; platelet count, 450,000; reticulocytes, .8 per cent; fragility, initial hemolysis .60 per cent, complete .48 per cent. Splenectomy was done on March 13, 1941. A spleen about 3 times the normal size was found. It was quite firm and bluish in color. Three small accessory spleens varying in size from 5 mm. to 8 mm. were likewise removed. The patient's postoperative course was uneventful. The spleen weighed 205 grams, and on microscopic section the pulp was found to be congested. Following operation the anemia disappeared though the spherocytosis and increased fragility remained.

Splenectomy offers the only permanent relief of symptoms and may even be advisable in those who are symptom free because of the potential seriousness of the disease. During a crisis, the patient should have general measures and symptomatic therapy with transfusions if the anemia is of sufficient degree to demand it. This permits the splenectomy to be carried out during a latent phase. There are a few cases, such as the second presented here, in which the splenectomy must be carried out during a crisis because of the inability to combat the condition with transfusions. This has been brought out by Doan and his co-workers, and Dameshek who has recently reported 3 cases of acute crises occurring in individuals of the same family within a period of 9 days. There can be no doubt that operating on a patient in a condition of acute crisis is much more dangerous than when the patient has been restored to a latent stage, but there are certain cases that demand such treatment. There is general agreement that following splenectomy

the clinical signs and symptoms do not reappear. This is in spite of the fact that the tendency to increased fragility and spherocytosis remains. As far as the operation itself is concerned, the technical procedure has been described by many. One item of utmost importance is the careful search for accessory spleens; for if they are allowed to remain, there will be a recurrence of the condition and severe hemolytic crises are likely to recur. Following splenectomy the great increase in the number of blood platelets predisposes to venous thrombosis. In anticipation of this, heparin has been advocated and used with success following surgery because of the danger of thrombosis of the splenic vein and its attendant sequelae. This would be particularly true in those cases in which thrombosis of the splenic vein was found during operation because heparin might prevent the extension of the thrombus.

In summary, 4 cases of typical spherocytic jaundice are presented which have occurred in 2 generations of the same family. Splenectomy has given uniformly good results as far as the clinical symptoms are concerned. This is not a rare condition and should be considered in the differential diagnosis in all patients showing jaundice.

I wish to thank Dr. Milton Bohrod and Dr. E. J. Kraus for their cooperation in these studies.

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ANOTHER USE FOR THE GASTROSCOPE

The possibility that certain types of cancer growths of the gastrointestinal tract may be diagnosed by means of a gastroscope (an instrument for inspecting the interior of the stomach) is suggested in *The Journal of the American Medical Association* for July 19 by C. Norman Giere, M.D., El Paso, Tex.

FACTORS INFLUENCING THE END RESULTS OF SURGERY FOR DUODENAL ULCER

J. R. BUCHBINDER, M. D.

CHICAGO

Progress in fundamental surgical knowledge and technique has been marked by a progressive diminution in the number of surgical procedures used for a given lesion. Such advances have been made chiefly because of increases in our knowledge of physiology and pathology. Thus we know that the efficacy of our operative therapy is usually in inverse ratio to the number of fundamentally different procedures used in the treatment of a disease. Thyrotoxicosis, bile tract infections, carcinoma of the colon, are typical examples of operative standardization. Peptic ulcer, but duodenal more than gastric, remains as perhaps the best example where standardized indications for operative intervention require specific consideration of the type of procedure to be used.

That we have made considerable progress in the surgical treatment of chronic duodenal ulcer in the past generation, particularly during the past decade, is indicated by the sharp drop in the number of operative procedures deemed physiologically sound. Pyloroplasty, simple excision, whether by knife or cautery, Y anastomosis, entero-anastomosis, sleeve and wedge resection, the Billroth I and a host of lesser known gadget-like repairs have all but dropped from serious discussion.

We may preface any discussion of the surgery of duodenal ulcer with the statement that there is unity of opinion on the surgical indications. It is the premise of this paper that gastro-jejunostomy is not the operation of choice for chronic duodenal ulcer and that we have no dependable criteria that enable us to anticipate the high percentage of poor results following the routine and indiscriminate use of this operation.

It is now an universally accepted view that high acid values play the dominant role in ulcer, that ulcers which have persisted in the presence of excessive free HC1 will heal with the complete and permanent elimination of HC1. Whatever

constitutional defect back of this lesion, so far as local conditions are concerned, this concept seems irrefutable. Patients who obtain complete and lasting surgical relief from duodenal ulcer always show two things: HC1 values approximating zero and a rapidly emptying stoma. Conversely surgical failures other than those due to gross technical errors are well nigh universally associated either with a failure to obtain or to maintain low acid values or with a slow functioning stoma. All discussion of the surgery of ulcer necessarily hinges upon these changes in gastric secretory and motor functions.

The historical antecedents of present day gastro-duodenal surgery have been too frequently told to need detailed recapitulation. Twenty years ago the continental group headed by Finsterer, Haberer, Payr, Clairmont and others, advanced the premise that in too large a percentage of cases gastro-jejunostomy does not lead to the healing of duodenal ulcer. In 1926 Finsterer stated that with the exception of perforations, he had done routine resection since 1919, that in his work "gastro-jejunostomy occupies a minor place;" and this at a time when resection involved the removal of not more than one-third to half of the stomach. The experience of Berg was slow in acceptance by American surgeons when he stated in 1930 that as far back as 1920 a ten year follow-up on cases of gastro-jejunostomy for duodenal ulcer showed unsatisfactory results, and that cases with this operation never measured up to the standard of resected cases. In the light of our present knowledge of gastric physiology and with the memory of the mortality following resection done twenty years ago, this hesitation is understandable.

The earlier concepts of gastro-jejunostomy regarded it primarily as a short-circuiting operation. It was felt that providing a new stoma necessarily provided an exit for gastric contents and acid, and so immobilized and protected the duodenum. It was assumed, however, that sufficient regurgitation of duodenal contents through the stoma provided adequate neutralization of acid gastric contents. For more than a quarter of a century this idea prevailed. In fact, in American literature it is only during the past decade that accumulating evidence has been compiled to show the gastro-jejunostomy performed in the presence of high free acid values carries

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with it a forbiddingly high percentage of recurrence and jejunal ulcer. During the early years of the advocacy of resection for this lesion, our literature abounded with statistical compilations contrasting the unjustifiably high mortality of resection with that of the conservative operation.

Chief among the earlier arguments were the following: Duodenal ulcer is a benign lesion neither requiring nor justifying gastric resection. Abundant statistical reports were repeatedly placing the rate of "cure" at around 90%. When failure occurred, by some men it was regarded as no more serious than a failure following medical management, and a too frequent argument for the procedure that improperly made or placed stomata explained many failures.

Since the advent of gastric surgery, there has been and there still is a difference of interpretation as to what constitutes a surgical cure of peptic ulcer. In formulating acceptable criteria for a surgical cure it would seem logical to designate as a cure only such cases where further continued medical and dietetic management was no longer necessary. It would hardly seem sensible even to classify as improved cases requiring alkalis, belladonna and the dietetic and physical restrictions commonly applied in the medical management of cases. That there is such an unjustifiably high percentage of such cases in the so-called "improved" group following gastro-jejunosomy, and as has been stated before, a larger group than statistical compilations would indicate, and that persistingly high free acid values are almost uniformly present, has been shown by many careful studies. Even among the group classified as cured who remain symptom free, it is a matter of common observation that they frequently do so by avoiding what they regard as dietary indiscretions. Back of a certain lack of gastro-duodenal stability to which gastro-enterostomized patients are subject are some interesting and pertinent physiologic facts. Fundal mucosa, the source of HC1, is more resistant to acid than is the pyloric mucosa, and far more resistant than the duodenum; the relative infrequency of ulcer in the fundic portion bears witness to this fact. The relatively greater ease with which non-malignant gastric ulcer yields to medicinal management is a further pertinent fact. On the other hand, duodenal ulcer, even the so-called uncomplicated variety, has fre-

quently been designated as a life-long disease and when such a lesion becomes intractable through penetration, it virtually never heals until free HC1 values approximate zero. This intolerance of the duodenum to acid is seen to a greater degree in the jejunum as evidenced by the fact that gastro-jejunosomy performed for a mistaken diagnosis of duodenal ulcer has been followed by jejunal ulcer.

The fact that the highest percentage of satisfactory response following gastro-jejunosomy for duodenal ulcer is in patients of middle and advanced years who commonly have low acid values to begin with is another case in point. While gastro-jejunosomy is relatively a safe procedure in the presence of cicatricial pyloric stenosis, there is a greater incidence of jejunal ulcer following a Finsterer exclusion, in which a high resection is done and the ulcer not removed, emphasizing again the role of the fundal mucosa in our surgical failures.

Countless tabulations of gastric chemistry following pyloroplasty, gastro-jejunosomy and resection have been made. That resection of an ulcer with the anterior half of the pyloric sphincter cannot adequately reduce acid values, even when the emptying time is reduced, is obvious. Gastro-jejunosomy, though commonly lowering the acid level, similarly fails at reduction to a safe level.

The facts summarized in the foregoing discussion have compelled us to recognize the direct relationship between acid and ulcer and are responsible for the rapidly increasing trend toward resection during the past five years. In the absence of specific knowledge as to why ulcer may occur in the presence of a normal acid level, or why an individual with a high level may have no ulcer, it would seem illogical to attempt to classify the origin of the lesion as acidic or infective and upon such doubtful criteria determine a specific form of operative attack.

What then should be regarded as a minimum standard for a satisfactory post-operative result? We must be able to tell the patient that his pain will permanently stop; that his bleeding will not return; that he will be able to resume his normal physical activity without recourse to dietetic regime, alkalization or other specific forms of medicinal therapy. This means, barring technical error, that the original ulcer will not recur, or if not directly removed, will heal, and

second, that a new ulcer at the stoma will not form. It is recognized, of course, that a small percentage, varying in different clinics, will necessarily need to follow certain physical and dietetic restrictions; nevertheless, no convincing argument can be levelled against the statement that the production of a state of anacidity will most frequently assure such end results.

The hazards of resection are naturally dependent upon the experience of the surgeon and the physical status of the patient, and the frank admissions of high mortality, in one instance, 18%, that experienced gastric surgeons have made of their early work is a matter of record. Present mortality averages for radical resection average from 2 to 6 or 7%, the average in competent hands being probably under 5%, a contrast with Finsterer's own statement that his mortality before the war, due to lack of experience, was 16.6%. The fact that the time commonly required in the earlier years of resection ranged above three hours and now in experienced hands is two hours or even less, plus the routine use of blood transfusion, have been prime factors in this striking reduction in mortality. If we place the minimum mortality of gastro-jejunostomy at 1%, and this is surely well below the average the country over, and if to this group of cases is added the mortality of secondary operations in the failures, then even a primary 5% mortality is within justifiable limits. This, of course, does not take into account a minimum mortality in medical cases due to hemorrhage or perforation, estimated by Berg at 1%. The above reasons are primarily responsible for the preferred position of resection by a steadily increasing number of American surgeons.

The chief hazards directly responsible for mortality are age or debility, anemia from severe or frequent bleeding, inflammatory fixation and obesity. Surgical access to the upper third of the stomach varies considerably, and when limited may add greatly to the hazard, as may an inaccessible duodenum, and such factors must be given due consideration before resection is begun. Nevertheless, in all groups representing added hazard, the scope of resectability has been markedly advanced in the past ten years and will be further advanced in the years to come.

Gastro-jejunostomy is definitely not suited in the younger age group, and the present tendency is to extend the age limits of this group. The

highest percentage of failures, it is well conceded, fall in the third, fourth and fifth decades of life. At any age when the severity or frequency of hemorrhage indicates surgery, this is a dubious procedure. The small stomach and wide open pylorus are similarly associated with a high rate of failure.

Patients of advanced years requiring surgery because of intractable pain commonly have acid levels below the ulcer maximums. Such patients who, however, represent a relatively small percentage of the entire duodenal ulcer group coming to surgery, may justifiably be considered suitable for gastro-jejunostomy. And yet in this group, resection is to be desired if the experience and judgment of the surgeon justifies it.

A word must be said about pyloric stenosis. During this period when resection has been progressively replacing gastro-jejunostomy for intractability and bleeding, benign cicatricial stenosis is still considered in the majority of instances a condition requiring only a new stoma. In the older age groups and in technically difficult cases this statement is for the most part true. In the younger age group the cause of retention should be carefully studied to eliminate a temporary block on the basis of edema. Such edema commonly yields to continued gastric suction and in this particular group may make the case unsuitable for gastro-jejunostomy. In the younger age group with stenosis, particularly if the free acid level be high, resection still remains the preferable procedure, provided the hazardous difficulties mentioned are not present.

With technical variations representing individual preferences that are essentially minor in scope, partial gastric resection for duodenal ulcer is a standardized procedure. As such is meant the removal of ulcerated duodenum and at least two-thirds of the stomach, the Polya technique or one of its modifications being the method of choice. A mere antrectomy is not a resection in the present accepted sense. Anything less than so wide a removal of stomach tissue will likely fail in the desired reduction of acid level and will also result in a slowed emptying time, since it is well recognized that the more proximal the stoma, the more rapid the emptying time. It seems highly probable in a critical analysis of failure in resection cases, it would be found that in many instances the resection fell short of the required high level.

If we are to keep our operative mortality to a justifiable minimum, avoid technical errors contributing to defeat, and assure the patient a cure, the routine observance of a number of conditions during and following operation are necessary.

The pre-operative passage of a suction tube far enough to pass the stoma into the jejunum should be regarded as an essential, and may in the event of temporary difficulty with the stoma prove as valuable as a jejunostomy.

The resectability of the ulcer itself will depend considerably upon individual technical experience. The difficulties associated with the closure of a short or inaccessible duodenal stump must be duly appraised beforehand. In cases in which the presence, location or character of an ulcer are in doubt, it cannot be too strongly emphasized that inspection of the duodenum through an adequate incision in the antrum is of utmost importance. There is wide variation in the accessibility of the duodenum; an ulcer demonstrated by x-ray may be difficult to find on the table, particularly if it be on the posterior wall where more than 70% of them occur. Furthermore, it is vitally important that the surgeon not burn his bridges by cutting across an indurated duodenum that cannot safely be closed, when resection with exclusion would prove safer.

It is well known that an exaggerated notion of the amount of stomach removed will be obtained if this amount be judged by the resected distal portion. Unless one gets well up on the lesser curvature to the level of the left gastric artery, the resection will fall short. The same error with regard to the greater curvature must be avoided, for unless a corresponding amount of greater curvature, requiring an almost transverse incision, is removed, impairment of motor function with consequent slow emptying may result.

The matter of post-operative motor function must particularly be emphasized, since one of the two objects of the operation is that of obtaining rapid emptying. The formation of a spur at the lesser curvature not only does not interfere with the function of the stoma, but is considered desirable in that it deflects contents from the proximal loop.

The greater curvature must, however, join the efferent portion of the jejunal loop with no spur formation and any failure to observe this rule will slow the emptying time or obstruct, if the

spur is large enough. Post-operative fullness and distress are often due to this error.

It seems hardly necessary to emphasize the need for fluid and electrolyte balance or the necessity for an accurate check upon intake and output. In no type of abdominal surgery is such accurate check more necessary. Blood transfusion at the conclusion should be routine. The use of continuous suction we believe to be very necessary, not merely for safety in the event of accidental obstruction, but as a source of information on the function of the stoma. When the stoma functions properly retention, even in the first forty-eight hours, will run low. Edema or spur, particularly the latter, usually account for retention. We believe that post-operative motor failure due to atony must be rare.

There is a wide difference of opinion on the matter of post-operative feeding. Many surgeons are still inclined to starve all post-operative abdominal cases, sometimes for as long as five or six days. It is our very definite opinion that any post-operative patient who is hungry, may, within reasonable limits as to types of food, of course, be fed, and that gastric resection is no exception to this opinion because of any danger to the suture line. In this connection a statement by Alvarez is worthy of quotation: "From what is known of the motor functions of the digestive tract, it seems probable that some paresis of the bowel and the attendant bloating seen after many operations is attributable to the usually enforced fasting with the stoppage of those swallowing movements which normally start waves moving down the bowel. In such cases a physiologist would feel inclined to urge the surgeon to try the giving of food as early as he dared, and perhaps earlier than is the custom at present.

"So far as I know there is no evidence to show that hunger contractions in stomach and bowel are easier on suture lines than are the contractions produced by the giving of water and soft food."

For many years we have encouraged the swallowing of water, tea, broth, thick soups or cooked cereals as early as the second day. Not only do we urge feeding by the third or latest the fourth day, but we are prone to anticipate trouble when the patient shows no desire to eat or has a feeling of fullness when small amounts of food are taken. The suction tube need be left in no

longer than to assure that retention will not occur. If on the third or fourth day retention is not in excess of 200 cc., the tube may be removed.

By way of summary, it is pointed out that in the operative treatment of chronic duodenal ulcer the goal is anacidity and a rapid gastric emptying time.

That used indiscriminately or as routine gastro-jejunostomy will fail in a large percentage of cases.

Partial resection, by accomplishing this goal in the largest percentage of cases leaves the smallest percentage of recurring and marginal ulcer, and while not routinely possible, is by far the more desirable procedure. In certain case groups its use is mandatory and increasing experience and markedly lowered mortality figures have made it applicable in the great majority of cases.

DISCUSSION

Dr. John A. Wolfer, Chicago: I hope you have all been impressed as much with this paper as I have been. Dr. Buchbinder was kind enough to send me a copy of this paper a few days ago and I have had the opportunity of reading it calmly and with thought, and he certainly does express a high ideal and gives us some very basic surgical and physiological principles for the surgical control of duodenal ulcer.

Personally, I have had considerable experience with the so-called lesser procedures such, for instance, as pyloroplasty, and it has been considerable time now that I have completely abandoned it because of the high incidence of recurrences.

Of course we have all had experience with gastro-jejunostomy. He called attention to two points which I think should be stressed: One, the performance of a gastro-jejunostomy in the presence of an obstruction. I think he rightly stresses the fact that we must be sure that the obstruction is not a temporary block by edema due to an active ulcer, because if you perform a gastro-jejunostomy you will have a chance of having a recurrence in the form of a marginal ulcer.

I also can verify his conclusion and statement also that if you perform a gastro-jejunostomy for that type of ulcer associated with hyperacidity, hypermotility in a nervous individual, you are simply courting disaster. A high percentage of marginal ulcers will ensue.

It might be interesting to call attention to one other aspect and that is some of the factors concerning the safety of the operation. I think many men shy away from a gastric resection because of the dangers of the procedure. There are a few sidelights which might be considered.

One is the assurance that the stomach is empty over a period of time to allow it to contract down if it has been dilated previously.

Secondly, another factor which we have been working on for the past few years is that dealing with the nutritional status of the patient. A starved patient will not respond to a surgical procedure like the individual who is well nourished and in a good state of vitamin balance. We have reported on several occasions on the matter of utilization of vitamin C for re-establishing a vitamin C saturation during the treatment of these cases.

Sir Reginald Payne reported a few years ago that probably the largest percentage of those cases that die following gastric resection die from leakage at the site of the anastomosis because of lack of wound healing.

He also found when these patients were saturated with vitamin C, the mortality from that cause became almost negligible. It is a factor that adds to the safety of the procedure, and when we make the procedure safe, it will be more commonly used.

Another factor is that in high resections it is important, if you do a transcolic or posterior anastomosis, that the transverse mesocolon does not impinge upon the efferent or afferent loops of jejunum. Recently we have been doing an antecolic operation and bring a rather long loop anterior to the colon rather than to have to pull the transverse mesocolon high up in the abdomen, fix it under tension, and have it slip down and obstruct the jejunal loops.

I am not quite as sure as Dr. Buchbinder is relative to the cure, — that we can take a patient who has a duodenal ulcer — and we know there is a duodenal ulcer status — and allow this patient already on a low threshold as far as gastric integrity is concerned to indulge in the stress and strain of life, eat and drink indiscriminately, abuse himself after he has had a gastric resection when he could not stand it when he had a normal stomach, I do not believe that will work out in 100 per cent of cases.

There is one question I should like to ask in closing, that is, in the penetrating duodenal ulcers whether Dr. Buchbinder recommends the removal of the ulcer or whether he advocates the exclusion resection advocated by Finsterer. This procedure certainly reduces the length of the operation and danger of leakage from a stump that cannot be sutured very well.

I appreciated Dr. Buchbinder's paper very much.

Dr. J. R. Buchbinder, Chicago (closing): In one section of the paper which I omitted because of lack of time was discussed this question which Dr. Wolfer brought up and upon which hinges the choice of procedure. There are cases in which it is physically impossible to do a resection or to do it without a considerable degree of hazard to the patient.

In exposing the ulcer, in identifying it as an ulcer, the lesion having been demonstrated by x-ray, it some-

times and in fact frequently is necessary to open the duodenum beforehand to identify the ulcer, to know the amount of duodenal fixation, its depth, and so on, and it is not always easy with a deeply-lying duodenum to mobilize that organ.

I think it is very important to hesitate if your line of resection through the duodenum involves an area of induration which will make a safe closure impossible. I once saw one of our most competent gastro-intestinal surgeons work for nearly three hours trying to close such a duodenum, and every one of us gets into such a mess at least once.

I think if there is any question about duodenal closure, a Finsterer exclusion should be used. It has been shown that the percentage of acid reduction is not quite so marked in the case of a partial duodenectomy. However, there can hardly be any question of choice between a gastro-jejunostomy and a Finsterer exclusion with resection.

Those who heard Dr. Wangenstein last night must have been impressed with one series of experiments he did which I think have a direct relationship to the discussion here, — the relationship of ulcer to acid, — and is worth while repeating.

He did a gastro-jejunostomy on a dog and then gave the dog histamine and was able to produce in a dog, by the injection of histamine, ulcer of the jejunum — marginal ulcer.

ALLERGY TO THERAPEUTIC SUBSTANCES

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In the last quarter of a century interest in allergic factors as causes of disease has assumed increasingly widening proportions. From the original simple idea of the inclusion of hay fever and asthma as allergic manifestations the allergic concept has developed to include eczema, migraine, urticaria, gastrointestinal syndromes, contact dermatitis, purpura, Henoch's purpura, granulocytopenia, canker sores, bladder irritations, unexplained fevers, phases of some of the infectious diseases, and perhaps other types of disease. This group of allergic ailments has had for its etiologic agents natural causes such as the foods ingested and the particles inhaled from the air.

While interest in allergy has been spreading, modern medical progress has been responsible in

the same period for the tremendous growth in the development of numerous, and in many instances specific, therapeutic agents. These new substances, coupled with a greater use and wider elaboration of older agents, have resulted in an extensive exposure of the population as a whole to a wide range of materials which can be regarded as foreign to the body. It is, therefore, not surprising to observe that with the increasing use of such therapeutic agents there is a concomittant increase in the incidence of intolerance to them. The reactions to such forms of medication as sera, vaccines, drugs and hormone injections, may vary from simple local swelling and irritation to urticaria, rhinitis, asthma, dermatitis, liver, kidney or brain damage, blood changes and anaphylactic shock and death. Since this etiologic phase of allergy is unnatural and man-made, we, as physicians, have a greater responsibility when such disease occurs. Many practitioners have felt that the new upstart allergy was not of their concern but was to be left to the mercy of that group of gentlemen who are caricatured as hunting dogs with their noses on the scent of the house dust allergen or similarly elusive quarry. However, no matter what the inclination or the specialty of the physician, the use of drugs and injections in the treatment and prevention of disease is common to all. It behooves, therefore, every physician to give some thought to the possibility of illness resulting from his own treatment, not by virtue of toxic doses administered but by reason of abnormal susceptibilities of the patient.

SERUM REACTIONS

Untoward reactions from the use of animal sera are perhaps the most important type of man-made allergy. These sera are usually derived from the horse and, due to increasing immunological progress, their numbers are increasing from year to year. The different types of reactions to animal serum are not always clearly defined in the mind of the practitioner, although the clinical significance, prognosis and prevention of each type are considerably different.¹

Serum reactions may be divided into two groups: ordinary serum sickness, and immediate serum reactions. Serum sickness is an acute disease occurring about nine or ten days following the injection of serum. It consists of itch-

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ing, urticarial skin eruptions, usually associated with fever, often accompanied by joint pains and swellings, enlargements of lymph nodes and at times albuminuria or neurological complications. This type of phenomenon occurs in the majority of persons receiving serum injections, the incidence varying from about 10 to 90 per cent, depending on the amount of serum administered, the route of administration and the degree of refinement of the material. Serum sickness is considered to be the result of the interaction between some of the uneliminated serum proteins and the gradually increasing antibodies produced as a result of the serum injection. The significant facts are that serum sickness, although uncomfortable and inconvenient, is not serious and its likelihood cannot be ascertained by a previous history or skin test, for the simple reason that the patient was not sensitive prior to the injection but was made so by the therapeutic administration.

Accelerated serum sickness, usually consisting of the same symptoms previously described, but coming on in a few hours to three or four days following the injection, occurs as the result of a second injection of serum, usually in those who have previously experienced serum sickness. This type of reaction may be regarded as a modification of the ordinary serum sickness.

Immediate serum reactions are of an entirely different order. The symptoms may come on in from a few moments to a few hours and vary from very mild manifestations such as urticaria and sniffles to violent asthma, profound shock and anaphylactic death. Such immediate types of reactions are dependent upon a sensitization as a result of a previous exposure to serum or its equivalent. The patient may have become sensitized to serum because he had an injection of serum from the same species of animal on some past occasion. The incidence of such reactions is not great and the majority are not severe, although fatalities have been recorded. By far the most serious type of reaction occurs in the person who is naturally horse-sensitive. The patient may be aware that being in the vicinity of horses may bring on an attack of rhinitis, coughing or dyspnea. Not all, but a large proportion, of those who are sensitive to horse dander are sensitive to horse serum. From clinical and experimental observations it would seem that horse dander contains two antigens,

the dander antigen A and the serum antigen B. If one is sensitive to both of the antigens in the dander, he will be sensitive to serum. If, on the other hand, he is sensitive to antigen A only, serum will produce no reaction.

Giving serum to a person who is atopically or naturally sensitive to horses is an extremely dangerous undertaking. We believe that there is practically nothing in medical therapeutics which is so fraught with dire consequences. I have often had physicians say to me: "You are unduly alarming us. We have practiced medicine for years and have given numerous injections of serum without any heed to the precautions you suggest. And yet we have not encountered a serious reaction." To such a challenge I can only reply that I hope your next patient receiving serum is not one who is naturally sensitive to this substance. If he is, you may have cause for regret.

The brevity and scope of this paper do not allow of a detailed presentation of the precautions to be observed in serum administration. But we can briefly sketch the essential steps to be taken. The patient should be asked about the presence of atopic manifestations, such as hay fever, eczema, or asthma in himself or his family. In taking a history particular emphasis should be placed on the possibility of previous serum administration and the patient's behaviour when he is around horses. It is our firm contention that every person in whom serum administration is contemplated should be tested for sensitivity to it. For the preliminary test the serum should be diluted a hundred or a thousand times and about .02cc of the diluted serum injected intracutaneously. If that is negative a stronger concentration may be tried. In the case of a positive reaction, a conjunctival test is made with diluted serum. If the latter is positive serum administration is probably unsafe.

In the case of a patient naturally sensitive to serum, who gives a positive skin and conjunctival reaction, the injection of the amount of serum ordinarily used for therapeutic or preventive treatment of infectious disease, usually exceeds the tolerance of the individual by several thousand times. It would be foolhardy indeed to expect, as has been advocated by some, that by frequently repeated injections such a person can be desensitized in a few hours. That such

cannot be the case is evidenced by the simple observation that in other types of atopy, such as hay fever, it takes several months of painstaking efforts to raise the tolerance level to this antigen to a degree well below the antigen ordinarily present in the amount of serum employed in therapy.

In recent years serum has been purified and refined so that reactions are less numerous and less serious, but it still contains sufficient antigenic substance to affect sensitive persons. More recently it has been claimed² that by digestion with the enzyme Taka-diastase serum can be "despeciated," that is, its antigenic qualities can be destroyed without affecting the immune bodies. Immune sera have also been prepared from animals of other species such as the sheep, goat and cow. A bovine tetanus antitoxin is available. The increasing use of toxoids for immunization, first for diphtheria and now for tetanus, is a commendable method for preventing the incidence of serum sensitizations and for preventing reactions in already susceptible individuals. The advocacy of histaminase³, or the anti-enzyme of histamine, for the prevention or treatment of serum sickness has proved worthless in our hands and in the majority of our colleagues.

OTHER ORGANIC INJECTABLE SUBSTANCES

In the last few years the large increase in the field of injectable substances such as hormones, vitamins and vaccines has also increased the problem of allergy to these materials. Allergic reactions to insulin were quite common in the 1922-1925 period before the product was thoroughly refined and freed of its extraneous substances. The first insulin preparations consisted of large volumes of protein-containing material and it was not surprising that allergic reactions should occur⁴. These reactions were undoubtedly mainly due to the animal protein. However, when insulin became highly purified allergic reactions were still reported⁵. It was then shown that in the majority of such instances the insulin acted as a special antigen irrespective of the animal source of this hormone.⁶ Insulin is a protein and even in its crystalline form it is capable of causing allergic reactions. The majority of such reactions have been of local character but a fair number of constitu-

tional reactions have been reported. The suggested procedure in such cases is to change the brand of insulin or to use the crystalline hormone in the hope that the situation may be one due to sensitivity to the trace of animal protein rather than to the insulin itself. If crystalline insulin continues to give violent reactions there is no alternative but to cease the use of this form of therapy.

With the employment of injections of liver extract in the treatment of pernicious anemia and other conditions allergic reactions soon began to be observed. One of the most thorough reports on the subject was that of Crip⁷ who found in his two patients, that this allergy was due to a special antigen in the liver and that his patients were not allergic to the flesh of those animals from which the liver extract originated. In the clinic on blood diseases at Northwestern University Medical School Dr. Howard Alt and Dr. Richard Young encountered seven patients in the last two or three years who became markedly allergic to injectable liver extracts. The patients were turned over to me for study and a number of interesting features were elicited. None of these people were sensitive on the first injection. Apparently they were sensitized only after repeated injections and particularly after a long interval of rest from injections. The symptoms of allergy ranged from mild attacks of urticaria to severe asthma and shock. Decided skin reactions were obtained with the purified liver extracts free from protein, but only weak or no reactions resulted from the fresh liver juice containing large amounts of liver proteins. In the majority of the patients the muscle tissues and the other organs of the hog and cow failed to produce a positive skin reaction. It is interesting to see, then, that we are dealing here not with an allergy to an animal protein, but to an organ antigen and apparently one not composed of protein of any type. This finding may well be the starting point for a turn of events in a better and clearer understanding of the nature and mechanism of allergy in general.

Allergic reactions to estrogenic and other hormones have been described and also experienced by the author. In all of these cases one must keep in mind the possibility that the allergy may be due to the medium in which the

hormone is dissolved. Thus far the problem has not become extremely vexing. Allergic reactions have been attributed to vaccines and to injectable vitamin preparations. Caution should be observed particularly in the use of non-specific protein therapy, such as milk preparations, for here really violent reactions may be encountered if one is so unfortunate as to give the material to the person who is sensitive to it.

DRUGS

There is nothing as embarrassing as having the patient become more ill from a drug one prescribes for the purpose of getting him well. In this connection, it may not be amiss to emphasize the difference between idiosyncrasy and true drug allergy. Twenty or thirty grains of quinine will cause vertigo and tinnitus in most people; these symptoms are to be regarded as the toxic or pharmacologic action of the drug; and in some susceptible individuals the same effects can be produced with much smaller doses. In drug allergy the affected person will respond with entirely different symptoms. As a result of allergy to quinine a small dose of the latter may produce asthma, rhinitis, urticaria, abdominal pain, rashes, fixed eruptions and other allergic reactions.

The clinical manifestations arising from drug hypersensitiveness are varied. One of the most common types is that resulting in atopic symptoms such as asthma, urticaria, abdominal pain, headache and purpura. These symptoms are caused by drugs such as aspirin, aminopyrine, quinine, antipyrine, morphine and codeine. Another group of manifestations consists of various forms of generalized skin rashes and dermatitis, caused by such drugs as barbiturates and arsphenamines. Still another type of drug hypersensitiveness is represented by the fixed drug eruption, in which the lesions recur repeatedly in the same fixed locations, as a result of allergy to such drugs as phenolphthalein, aminopyrine, antipyrine, mercury and arsphenamines. Leucopenia, granulocytopenia and thrombocytopenia have been produced by drugs. Encephalitis, liver damage and lens cataract have been noted as the effects of allergy to other drugs.

Undoubtedly about the most common and most violent of these drug allergies is that to aspirin. Perhaps the most common manifestation of aspirin allergy is asthma, of such violent

intensity that not rarely it terminates fatally. There is no type of asthma attack that produces so much concern to the experienced onlooker as that produced by aspirin intolerance. The majority of persons we have seen with aspirin allergy have been those who presented themselves for chronic asthma and in whom a history of intolerance to this drug was obtained incidentally.

Of a group of 50 aspirin sensitive patients who consulted us for chronic allergy, asthma was the major complaint in 46, the majority of these also having allergic rhinitis. Other complaints were urticaria and angioneurotic edema, atopic dermatitis, abdominal pain and headache. There were 33 females in this series and 56 per cent of the entire group had a family history of atopic disease. By way of illustration of the recalcitrant nature of this group of allergic people, 33 had had nasal operations performed, often several times, consisting of polypectomies, turbinectomies, septum operations, Caldwell-Luc and other radical sinus surgery. The most marked acute manifestations on taking aspirin in 33 patients was asthma. Aspirin caused urticaria and angioneurotic edema in 13, and in a few others gastrointestinal manifestations, rhinitis and atopic dermatitis. In at least 18 patients there was a history of allergy to other drugs.

In conformity with earlier reports⁸ our cases also failed to give positive skin reactions to aspirin. As a matter of fact, it can be accepted as a simple rule, with a few notable exceptions, that drugs which may produce violent allergic symptoms give negative skin reactions. It should be emphasized, therefore, that a negative reaction to a drug is not only clinically meaningless, but may even be misleading. It should be further emphasized that such drugs must not be injected intracutaneously for diagnostic purposes, since such a procedure may easily result in regrettable results. In this connection it is well to mention also that there are certain substances which are primarily urticariogenic, that is, they produce a positive reaction on everyone when placed on a skin scratch. Among such drugs are codeine and morphine. Naturally, positive skin reactions with the latter should not be misconstrued as an indication of an existing allergy to these substances.

Time and space do not permit us to discuss

the possible implications of the negative reactions in drug allergy, nor of the association of aspirin sensitivity with the type of asthma which is generally severe and intractable and in which usually no specific cause can be found by the usual method of skin testing. All we can say at this moment is that we are fully aware of these interesting facts, that we believe they do have some logical connection and that a great deal of the puzzle of allergy that remains to be solved in the future will be linked with these simple observations. In collaboration with various departments of the Northwestern University Medical School we are working diligently on this general problem and we hope that in a not too distant future we shall be able to present more concrete findings to you.

In the meanwhile, there remains the very practical problem of being on the alert in the prescribing of drugs. Aspirin is used in various proprietary remedies. The patient who almost died from two tablets of "alka-seltzer" could have prevented that terrible night if he had read the label *before* he took the drug for indigestion. The points I wish to make are that: there are numerous and dangerous proprietary mixtures of drugs, that the present laws do require labeling, that a thorough interrogation of possible drug allergy should be made of the patient prior to the prescribing of drugs, particularly if one is dealing with an allergic individual, and that the drug-sensitive person should be warned about reading labels or, better still, to consult the physician before taking any new drugs.

If we had time, we would like to discuss in detail other drugs and other types of reactions. Time allows us only to mention two or three. Barbiturates quite commonly cause allergy, particularly rashes. One should be especially cautious in giving barbiturates intravenously. Sulfanilamide and related compounds, now in use for almost any ill under the sun, are occasioning an ever-increasing crop of allergic reactions. The nature of these drugs apparently makes them ready sensitizers. Rashes have occurred with greatest frequency, although asthma, angioneurotic edema, granulocytopenia and photosensitization have also been reported.

One cannot forebear to say a few words about the arsphenamines. From the very beginning

of the use of these chemicals in the treatment of disease, allergic manifestations began to be recorded. It is now common knowledge that such reactions are frequent, varied and in many instances serious. It is true that disagreement exists as to the mechanism of some of the untoward effects, as to whether they are allergic or primarily toxic. But if we accept the broad concept of allergy — that of an altered reactivity — we are forced to regard these manifestations as reactions due to allergy. Among such effects are dermatitic rashes, urticarial eruptions, fixed drug lesions, exfoliative dermatitis, hepatitis, hematopoietic disturbances including aplastic anemia, granulocytopenia and thrombocytopenia, asthma and rhinitis, and anaphylactic shock.

The specificity of these reactions varies in different persons. In some it extends to practically all arsenicals. In a large number the benzol radical is the active part of the antigen. Often, a person who cannot tolerate one arsenical preparation, such as neoarsphenamine, can take with impunity such preparations as tryparsamide or inapharsen.

In this paper we can only touch on another type of man-made allergy. All of us know of contact dermatitis to allergy to the lipoid substance of poison ivy. Many of us have encountered other types of plant dermatitis such as that due to primrose, ragweed, and others. It should also be well known that other vegetable substances, dyes, simple chemicals and particularly heavy metals and their salts cause allergic dermatitis when applied to the skin. Most common among the latter are mercury salts, quinine, nickel, and resorcin. It is important for the physician to realize that many a case of resistant dermatitis may be continued by sensitivity to the ointments or lotions containing mercury, lanolin or other allergens, and that the treatment may be actually prolonging the disease.

SUMMARY

The constantly increasing variety and application of drugs, sera, vaccines, endocrine products and other substances in medical therapeutics has occasioned an ever growing problem in allergy to these substances which must be appreciated and recognized by every practitioner. It is incumbent upon every physician to question his patient about any possible allergy to the medicament he desires to administer and to de-

velop a healthy respect for the possible harmful effects that may be produced by such reactions.

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SURGERY OF CARCINOMA OF THE COLON AND RECTUM

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Most authors have found that one-third to one-half of those afflicted with carcinoma of the colon and rectum have lesions which are beyond any hope of surgical cure when first seen. Most of those having inoperable or unfavorable lesions have been under the care of physicians for months, sometimes for more than a year, without a diagnosis being made. Before we discuss treatment, let us review a few of the diagnostic signs.

The most constant symptom of carcinoma of the large bowel is a change in bowel habits. This is usually a slight tendency to diarrhea where no such tendency existed before, or there may be an alternating constipation and diarrhea. Red or dark red blood is often seen. This is on the outside of the stool if the lesion is low in the bowel. In lesions of the right side of the colon, the blood may be microscopic and not visible grossly. Cramping pains, a feeling of fullness, or a dull uncomfortable feeling in the region of the tumor is common with larger lesions. Flat

or toothpaste ribbon stools are common with lesions of the rectum and sigmoid.

The first step in making a diagnosis is to *THINK OF THE POSSIBILITY OF CARCINOMA*. The next step is to do a rectal examination with the patient lying on his side. If in doubt, have the patient squat and strain down while the rectal examination is done. If no tumor is palpable, a proctoscopic examination is indicated. Anyone can examine a formed stool grossly. Blood on the outside of the stool, in the absence of a fissure at the skin margin, demands a thorough examination. Remember that the X-Ray examination of the rectum and colon has its limitations. You can not expect the roentgenologist to demonstrate early lesions which are so low that they cannot be moved by the examiner's hand palpating through the abdomen. If the tumor is visible and can be biopsied through the proctoscope, fluoroscopy should not be done, as a thorough examination is apt to lead to an obstruction and an incomplete examination is of little value. If X-Ray examination is negative my patients return after two or three weeks and three stools are examined for blood by the benzidine test after they have been on a meat free diet. If blood is present, a search for the bleeding area must again be made. *NOT ALL RECTAL BLEEDING COMES FROM HEMORRHOIDS OR RECTAL FISURES. IF WE THINK OF THE POSSIBILITY OF CARCINOMA, MORE OPERABLE LESIONS WILL BE FOUND*, and remember that one negative X-Ray examination does not rule out the possibility of carcinoma of the large bowel.

When a tumor of the rectum or colon is diagnosed, the possibility of removal must be determined. We consider all carcinomas operable if there is no sign of spread beyond the field of possible resection. Of course, metastases to the liver, lungs or other distant organs cancels any hope of permanent cure. Fixation of the tumor to adjacent structures is a sign of inoperability if the structure invaded cannot be removed. Therefore, when there is tight fixation to the sacrum, the base of the bladder, aorta or iliac vessels, complete removal cannot be done. Fixation to the abdominal wall, the dome of the bladder, the more accessible part of the uterus, the posterior vaginal wall low down, or even to a loop of small bowel, does not necessarily spell

defeat, as these can have wide resection around the invaded area and some of these will be cured for 5 or more years.

Invasion of blood vessels by the tumor was found in 17% of surgically removed specimens of carcinoma of the rectum by Collier, et. al.¹ This could not be diagnosed preoperatively.

Spread by the lymph system is very difficult to determine grossly. I examined 496 nodes from freshly removed specimens of carcinoma of the rectum. These were cut in two with a razor blade and of the 111 nodes containing metastases, only 48 showed any gross change. In carcinomas of the right side of the colon, very large lymph nodes are often palpable and visible and very commonly these are found to be uninvolved when they are sectioned microscopically.

A careful study of the lymph node metastases in 154 operative specimens of carcinoma of the rectum and colon has been made in our laboratory. This was done by clearing the specimens as described by Gilchrist and David². Full scale drawings of all specimens with the arterial tree and the exact location of the lymph nodes in relation to the tumor and arteries were made. More than 8,000 different lymph nodes from these specimens were studied microscopically. 63.5% or 81 of 127 specimens of carcinoma of the rectum contained lymph node metastases, as did 65.4% of 27 specimens of the colon. The specimens of the rectum averaged more than 60 nodes per specimen. One contained 210 nodes. Specimens of the colon averaged 49 nodes.

Analysis of the specimens studied in this series has led to the following conclusions.

The size of the tumor is of little value in determining the presence or absence of lymph node metastases. This is an excellent example of this phenomenon. The patient, age 68, had had symptoms for five months. The tumor involved at least 75% of the circumference of the bowel. 53 lymph nodes were removed from the specimen; all were normal. He died of pulmonary embolism. 110 retroperitoneal nodes also failed to show lymph node metastases. In contrast, a man 49 years of age who had had symptoms for two months, had a tumor which involved 20% of the circumference of the bowel. The specimen was studied by gross dissection; 32 nodes were found, 25 of them contained metastases. 15 of the 25 involved nodes showed pathologic changes on sectioning, before fixation.

Where the upward lymph channels are blocked by metastases, there may be a retrograde metastasis downward as in a patient age 65 who had had symptoms for at least six months. The tumor involved about 65% of the circumference of her bowel. 27 nodes were found by gross dissection, 22 of them having metastases. The lowest of the five nodes below the tumor was 4 cm. below the lowest edge of the tumor. In six cases, retrograde metastasis of lymph nodes was found below carcinomata of the bowel or rectum. In every case enough of the nodes central to the lesion were completely replaced by carcinoma to make us feel certain that there was a very marked obstruction to lymph flow and the metastasis was by retrograde means. Sections of the tumor and of the topmost node, one node near the tumor and two nodes below the tumor show how very difficult it is to grade these tumors. There is the most marked difference in cellular structure between metastases in adjacent nodes or even between parts of the same node. A single section of the tumor should not influence one too much in the ultimate prognosis.

Permeation of carcinoma through lymph channels was seen only when the lymph nodes central to the channel involved were already blocked with carcinoma.

Carcinoma metastases do not completely destroy the function of a node until all of the node is destroyed. This was shown in a surgical specimen of carcinoma of the breast. The lymph channels in the neighborhood of the tumor were injected with a suspension of carbon particles. The specimen was cleared and some of the lymph channels and several lymph nodes were seen to be outlined in black. This section shows how the carbon particles could still flow into the normal part of the node although some of it penetrates a short distance along spaces between the cancer cells.

Throughout the entire series a common pattern of lymph node metastasis was seen. When the metastasis has grown larger than the small subcapsular lesion, the spread is by expansion around the subcapsular space and into the depth of the node. This is usually accompanied by a thickening of the capsule especially over the area adjacent to the growth. There may be a more or less heavy layer of fibrous tissue between the cancer cells and the lymph cells. In many cases

there is so much interference with nutrition that we see a thick layer of fibrous tissue, a thin rim of live cancer cells within this, and necrosis in the center. Growth progresses until we see one or several large nodes, usually lying close to the main blood vessels, in which the lymphoid tissue is completely replaced by carcinoma. Groups of lymph nodes which are completely replaced by metastases tend to be found in certain regions. In specimens of the rectum and lower sigmoid such nodes are usually located near the bifurcation of the superior hemorrhoidal artery. The group of heavily involved nodes is along the main or primary line of drainage. Nodes involved below or lateral to these nodes are apt to be subcapsular lesions or ones which are obviously late metastases.

In no case has there been any evidence of penetration of carcinoma outside of the capsule of any node, except where there was a collection of large involved nodes lying tightly packed together. In seven of the nine cases where this occurred, the superior hemorrhoidal artery or the main artery supplying the region of the nodes was blocked by pressure of the nodes. Several of these nodes contained necrotic material.

Postmortem examination of surgical patients demonstrates the tendency of the lymph nodes to block the spread of carcinoma even in advanced cases. In seven cases where the patients died within two weeks after resection of the rectum or sigmoid for carcinoma, microscopic sections were made of all of the retroperitoneal nodes from above the point of origin of the superior mesenteric artery to the inferior border of the prostate, as far distal as it is possible to cut the arteries from within the abdomen. Each of these preparations contained 110 to 168 lymph nodes. Two patients who had no metastases in their operative specimens and one patient who had three involved nodes in the operative specimen had none in the abdominal nodes examined. One patient had had symptoms for more than a year, and had had a biopsy made a year before, but had refused operation at that time. The tumor was ulcerating and it had penetrated all coats of the bowel. Nodes were palpable in the hollow of the sacrum. 62 nodes were found, 43 of them showed metastases. The highest node involved was only 3 cm. below the point of ligation of the superior hemorrhoidal artery. He

had an uneventful postoperative course until the eighth postoperative day, when he suffered a massive pulmonary embolus and died. 160 nodes were examined. In spite of the extensive lymphatic involvement, there were no metastases above the point of resection. The one node involved was about 1 cm. lateral to the widest point of resection, along the levator ani muscle.

Another man 72 years of age had a number of enlarged nodes high up. Because of a peculiar congenital peritoneal anomaly, the superior hemorrhoidal artery could not be resected as high as it usually is. 35 nodes were found in the operative specimen, seven of them contained carcinoma. 111 nodes were studied in the postmortem preparation; four of them contained carcinoma. In this case, at least one of these nodes would have been beyond any hope of removal.

Another man 66 years of age had had a known coronary thrombosis ten months before. The lesion was just above the rectosigmoid. It was the size of a fist and there was a large mass of nodes up to the promontory of the sacrum. A David type of obstruction resection was performed. Many of the nodes near the highest point of resection were completely destroyed by carcinoma. Only one of the 168 nodes found in the postmortem preparation contained carcinoma, and that was a very small subcapsular metastasis in a node not 1 cm. beyond the line of resection.

Another man 72 years of age had had symptoms for four months. 14 of the nodes in the surgical specimen contained carcinoma. The highest of these was just below the line of resection. In the postmortem preparation, 114 nodes were found. Four nodes just above the highest point of resection contained carcinoma as did one node just lateral to the growth, along the levator ani muscle. All of these involved nodes might possibly have been removed if their presence had been known.

As far as the surgical procedures used to remove cancer of the rectum and colon are concerned, we can make a few general rules, the rest must depend on the experience of the individual surgeon. First, never do any kind of large bowel resection if there is any obstruction present. If this rule is broken, you can expect more than the 10% mortality, which is con-

sidered satisfactory in most groups. Second, if there is evidence of node involvement, be sure to resect as widely as is possible. Third, in tumors of the sigmoid and higher, where the growth can be removed through the abdomen, it is much safer to do an obstruction resection with a closure of the colostomy later than to attempt any kind of primary anastomosis. Fourth, in tumors of the right side of the colon, caecum and ascending colon, a resection of the terminal ileum, caecum and to the middle of the transverse colon is best. This may be done after a preliminary lateral anastomosis of ileum to transverse colon, or the anastomosis may be done primarily if there is no obstruction. If in doubt, anastomose first and resect at a later date.

CONCLUSIONS

1. The size of the tumor and the duration of symptoms are unreliable prognostic signs in carcinoma of the large bowel.

2. About 65% of all operatively removed specimens of the rectum and colon will have lymph node metastasis, if they are searched for carefully.

3. The spread of carcinoma through the lymphatic system is by lymphatic emboli.

4. Hematogenous metastasis of carcinoma is an accident and does not seem to be common in grossly operable lesions.

5. Postmortem examination of surgical patients demonstrates the tendency of the lymph nodes to block the spread of carcinoma even in advanced cases.

The object of surgery of cancer is a reasonably wide resection of the tumor and the most extensive resection of the lymph node bearing tissue that is possible without increasing the mortality appreciably.

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The family physician occupies the key position in finding tuberculosis. He, in the final analysis, plays the most important part in the reduction of tuberculosis because the control of the disease begins in his office. L. M. Morse, M.D., *Wisc. Med. Jour.*, Mar., 1941.

OBSERVATIONS ON THE CORONARY SYNDROME

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It is the purpose of this paper merely to call attention to a few facts I regard as of considerable interest and importance in the handling of coronary occlusion which we see so frequently of late. Obviously no paper of fifteen minutes can give more than indications from the innumerable facts that are known about the disease and only a small part of the history of the disease can be given in the allotted time. It is then probably much better to drive home one or two important facts in such a paper than to try to cover too much. It is obvious, therefore, that a great many things of importance must be left out if this main idea is to be forwarded. I trust my audience will recognize that this only an attempt to do a very little that should be done along these lines.

Occasionally in history it falls to the lot of some fortunate individual to be given an insight and an appreciation of the significance of innumerable isolated medical facts painstakingly gathered through the years, sometimes through the centuries. This man will correctly evaluate and coordinate these facts into a coherent whole and a new, complete, medical picture in diagnosis or therapy is born. It is relatively unimportant that parts of the mosaic were previously recognized or even therapeutically used by a host of others, nor does it detract from the glory of the student who finally achieves this enviable distinction. Such a course of events occurred in 1912 when Herrick brought out his splendid work on the coronary system giving form, substance, and clinical standing to a medical accident which had intrigued the medical profession for years. It is known that Adam Hammer recognized obstruction of the coronary in 1875 and Dock made another notable contribution in 1896, but it is also known that clinicians and pathologists had many times previously described the condition under various names for more than a century before this. Surely then the coronary syndrome has been with us since the dawn of medicine as a major dramatic cause of medical

accident attended by subsequent cardiac disability and occasionally sudden or protracted cardiac death. Reviewing from this late date it is difficult for us to appreciate why the profession waited so long for a correct interpretation of so striking a pathological and clinical picture. Surely, also, there must be other clinical syndromes over which we stumble daily and likewise do not appreciate but which we could now use with confidence and credit had we the wit to see them.

The modern physician is confronted with a relative and absolute increase in coronary cardiac patients in this country and in seeking a possible explanation for this increase, several factors immediately present themselves. Among these the following stand out, I believe, as probably of the greatest importance: First, proper diagnosis. The rule, first applied to tuberculosis, that the most important factor in diagnosis consists in keeping the disease in mind, is certainly true in coronary disease, also. Add to this the more extensive use of electrocardiography plus the greater frequency of the condition in modern practice and we have some reason why we diagnose this condition more often. Second, greater incidence. There are living today in the United States more people in the upper age brackets than ever before and this number is expected to be steadily augmented for some years. Our population, therefore, is much older on the average than it ever has been and it is in *precisely* such a population, containing more of the upper age groups, that we should expect *this* type of patient to be most frequently found. Third, anatomical factors. There are living today a relatively large group of individuals, now unrecognized — perhaps even unrecognizable — who in harsher, less civilized times would have died in infancy of infectious diseases or from other causes. These represent the medical pediatric triumphs of the last half century. Probably there are many individuals with unrecognized anomalies of the vascular system in which incidence of medical accidents may be disproportionately high. Fourth, definite anatomical anomalies. It is possible that the white race has grown up. There may be developing in this white race a degenerative tendency which is showing itself in the circulatory, as it undoubtedly has in the mental field.

One would expect at this late date that few new anatomical discoveries could be made, yet such an achievement has, in fact, been reached in very recent times by certain anatomical studies on the coronary system. M. J. Schlesinger and his co-workers at Harvard have shown that the prognosis in any coronary infarction depends to a large extent on the inherited type of the cardiopath, speaking anatomically. He recognizes three groups. Group I comprises approximately 48% of adults in which the right coronary artery is predominant posteriorly, supplying the greater percentage of the posterior sulcus and the septum. Group II comprises approximately 34% with an even balance between the right and left coronary and a *balanced* blood supply to the septum. Group III comprises about 18% with a strongly predominant *left* coronary which also supplies the septum. In the two unbalanced groups, coronary occlusion or sclerosis is a much more serious occurrence than in Group II where the circulation is balanced. Accidents in the right coronary Group I are less serious than those in the left or Group III. In this latter group an occlusion of the artery is quite often followed by a fatality within a short time. In this connection it is interesting to note that the percentage of women falling in balanced Group II is greater than men, and all three groups correspond sharply with the clinical observations that women are not only less subject to coronary occlusion but that the condition is less often fatal. Is it not also probable that the approximately 20% of fatalities we expect in major coronary occlusions within sixty days is due to this set of facts? Unfortunately for us in private practice, careful anatomical studies of this kind are not possible and we cannot prove what we know to be a clinical fact, therefore. In all types the time factor is of more importance than the extent of the involvement. Frequent infarctions or extensive damage may be survived if the patient is fortunate in the time element. Of this, more later.

With these very brief remarks on historical and anatomical factors I leave this field to take up the coronary syndrome from a physiologic angle since I am primarily concerned with two ideas there. Therapeutics must be based upon a physiologic approach to a diagnosed entity. In my opinion two conceptions in the physiological

field are very much in order for most of us. In 1917 the cardiac field was very much in chaos. Anyone who examined for the Draft Boards then will appreciate this fact. Today calls for a revision of thinking incorporating what was learned then and since, and to do this two main points must be made. First, a *satisfactory* coronary system *must* contain the following attributes, and a physiologic separation into these groups must be made before proper therapy may be applied: (a) A coronary artery to be efficient must have capacity sufficient to supply the volume of muscle that is dependent upon it. (b) The system must have flexibility, the power to enlarge upon increased demand whether sudden or prolonged. This means that it must not be sclerosed. (c) The system must be patent. Obviously, an artery which is not patent cannot possibly possess either the first or second attributes. Valvular lesions excepted, it has long been my belief that the keystone of the efficiency arch of the cardiac end of the circulation in adults lies in the coronary system. I seriously doubt whether the demands of the body can be increased sufficiently by voluntary action to override the capacity of normal cardiac muscle or coronaries to serve, *but*, should there be a disturbance of any one of the three coronary attributes just mentioned — capacity, flexibility, or patency — the stage is set for disaster at any moment that extra demands are made. Before instituting any treatment with a patient who has suffered a heart attack in its broad sense, a separation must be made as to which of these three is the major factor by physical examination, history, and the electro-cardiogram.

To illustrate; it is well known that vascular crises occur in hypertension leading to shock, fall in blood pressure, dilatation of the heart, and anginal pain, which is practically indistinguishable from a coronary occlusion except by electrocardiography. In the patient with coronary sclerosis without enlargement and without increased blood pressure, the capacity of the vessel to serve the individual may be easily overridden leading to a similar picture, and again a separation must be made. In the hypertensive there is greater muscle mass than the size of the artery will accommodate. In the sclerotic there is the same amount of muscle mass as normally but the vessel is constricted or inflexible and this latter is apt to be a progressive affair. If

an occlusion has taken place we have a different situation entirely. Obviously, separation of these three carries with it also a fair idea as to the prognosis, both as to the time the patient must be treated and as to the ultimate outcome. The first requires treatment for the hypertension where that is possible, temporary rest and help to tide him over the emergency, but the treatment is directed not so much to the heart as to the general situation. The second requires, in addition to emergency treatment, a drastic cut as to his future demands and not much may be expected so far as his future is concerned since the condition is slowly progressive in spite of all that medical science knows. The third type, occlusion, needs vigorous treatment to tide over the emergency and careful handling for months or years but may in some instances recover either none of his function or all of it, depending upon the size and position of the occlusion and the condition in which the heart muscle is left.

Second, in addition to this important physiological consideration there is also a revision necessary in our attitude regarding the heart in relation to the general circulation. To regard the heart as an isolated mechanism and to disregard the general circulation is a fault that has been common to most of us for many years. If there is one fact which I should like to have remembered from this brief paper it is this: The heart is an integral part of a large complex system and constitutes so far as pressure is concerned only one-half of the system of dams by which that pressure is maintained. My conception of cardiac function is that the main system of arteries, large and small, is an exceedingly complex organ with two sets of dams, a power plant and a governor. The aortic valve in the main circulation and the pulmonary in the minor constitute one set of dams about which the power house is grouped. The other set of dams consists of the innumerable small arterioles leading into the capillaries. If either fails to function properly the whole structure becomes inefficient and symptoms result. Since the great mass of capillaries is widespread and not entirely under local control, it does not move as rapidly to open or close the sluice gates as the normal demands of the body may dictate and the heart is utilized by the system to raise or lower pressures in the main tubes more rapidly than the

capillaries can act. This puts a premium upon the flexibility of the cardiac end of the system and makes of the heart an adjunct to the general circulatory organ and a governor which acts largely on orders from the periphery.

This governor function, in my estimation, has had too little consideration. By a change of pace or volume output the heart can control rapid changes in pressure in the arterial system from beat to beat but when, as we all see in shock, the peripheral system relaxes enough to permit a general fall in the blood pressure, the heart is the place where it first shows up. The pulse becomes more and more rapid, but with a seriously relaxed peripheral system it is utterly powerless to maintain the pressure in this system. It is quite evident that the call upon the heart to increase pace or volume comes from the periphery and it produces rapidly on order for the enormous system of which it is a part. We usually think of the heart as a builder and maintainer of pressure and a mover of blood forward into the system but this third function, that of the governor of the system, is seldom mentioned. In coronary accidents, notably occlusion in the presence of sclerotic heart blood supply and in the vascular crises of hypertension, this third function of the heart as a governor seems to be the one most immediately affected. Many times we see a heart that can maintain pressure and move blood satisfactorily but which is totally unable to handle a change of pace or a change in volume output in time to prevent disaster to the host.

I have found one of the most dangerous periods in the handling of acute coronary occlusions to be that immediately following the relief of pain up to the point where signs of congestive failure first appear. Most coronary accidents of this sort are first attended by severe pain and shock and then are followed after the relief of pain by a variable period often amounting to as much as three or four days during which the patient looks and feels fairly well. There is little or no change in his blood pressure — sometimes a drop but not always. He is not particularly short of breath. His pain is either absent or not prominent. The heart at this time is undoubtedly operating on the reserve already there and the period of active symptoms from visceral congestion and failure of the right

or left heart have not yet appeared. I say this period is dangerous. Specifically, I mean that it is in this lull before the storm that the physician or the patient or both are apt to be fooled into allowing the patient to do the things that may lead to a sudden fatality at any moment. I have known of a number of instances where a patient got up and returned to work during this period in the disease with or without the advice of his physician, feeling that the original diagnosis was wrong, and sudden death came to him on a downtown street or in an office. I make a very earnest plea at this time for extreme caution in the handling of coronary patients at such a time in the hope that it may prevent a fatal accident to some friend or patient who might otherwise be able to make a recovery if a load was not thrown on the heart too soon. He should remain flat in bed and not be allowed any responsibility whatever until the primary period is finished.

Little need be said of therapeutics if pathology and physiology are properly understood as they carry their own implications as to what should be done for the individual. I shall, therefore, say little about it except in general terms. In an acute coronary accident, whether it be an occlusion, an overridden demand on a sclerotic artery or a vascular crisis, the time element is vital and every effort must be made to secure this one thing. I use oxygen frequently and recommend its use. I use coronary dilators in the form of theobromine preparations almost routinely. Early in occlusive accidents I also use quinidine in the hope that I may prevent a fatal ventricular fibrillation and sudden death, and clinical experience over an extended time seems to bear out its value. Whatever position we put the patient in to steady his circulation and give him a set demand, I regard as well worthwhile. I believe strongly in the use of morphine not alone to relieve pain but also for the purpose of quieting the patient and reducing circulatory demands. I keep the patient quiet longer than I think is necessary and relieve him of visitors and other irritating factors wherever it is possible. I believe thoroughly in serial electrocardiograms and have many times seen a late electrocardiogram show an occlusion which the first or even the second graph did not show. It is well known today that the changes in the

electrocardiogram develop from the muscle changes and not from the occlusion itself, and these changes take some time. Frequent blood pressures will give warnings not to be obtained from any other source and daily weighing of the patient will give a better indication of the amount of fluid retention than a record of twenty-four hour intake and output.

SUMMARY

Three main points bearing on the coronary syndrome have been discussed. First, I recommend extreme caution during the period beginning with the relief of pain to the first signs of congestive failure. Many lives may be saved by this caution and by conservative handling. Second, a division into three main types for diagnosis and treatment: the disturbances of flexibility, capacity, and patency. Third, a plea is made for a consideration of the general circulatory system as the main consideration with the heart in the role of governor and as an organ for the maintenance of balance in the circulation. This makes the function of the heart threefold — a builder of pressure, a mover of blood, and an automatic governor. A very few suggestions along general treatment lines have been made.

WARNS OLDER DIABETIC PATIENTS AGAINST NEGLECTING THEIR FEET Improper Care May Expose Them To Danger Of Gangrene As a Result Of Impaired Circulation, Hygeia Author Says

A warning that diabetic patients of advancing years may expose themselves to the danger of gangrene by neglecting to care for their feet is sounded in *Hygeia, The Health Magazine* for September by Saul S. Samuels, M.D., New York. "It is now known," he declares, "that the diabetic patient of middle age and older is particularly prone to the development of trouble in the arteries of the legs and feet. For some reason — yet unknown — these tubes which carry the blood have a tendency to lose their normal elasticity and become thickened, sometimes brittle, and in some cases completely or partially blocked by tough rubbery material known as a thrombus or blood clot.

"This is not ordinarily a sudden happening; it is usually a gradual process which, if neglected,

may eventually terminate in the serious condition known as gangrene. The progressive blockage in the arterial tubes of the legs may eventually proceed to such a point that either not enough blood gets through or none at all is carried to the feet. If this should happen the nourishment which is carried by the blood is also cut off with the result that the involved parts die, become black and thus begins the gangrenous condition. Gangrene may involve part of a toe or may affect several toes or part of the foot."

Symptoms which should serve as a warning to persons with diabetes of impaired circulation of the feet, Dr. Samuels says, include numbness of the toes or of the soles of the feet, a feeling of abnormal coldness in the toes or in the entire foot, a tired feeling in the feet which seems to come on after walking and pain of varying intensity in different parts of the feet, usually in the arch or instep, which is made worse by walking a comparatively short distance.

As precautionary measures against impaired circulation of the feet, Dr. Samuels advises that "warmth of the feet must be preserved by wearing undyed woolen hose as soon as cold weather begins. Women should wear woolen underhose throughout the winter months. For men, woolen socks of extra length are absolutely necessary, as well as the use of woolen underclothing. If there is a tendency for the feet to become cold at night, woolen bed socks should be worn.

"It is now generally accepted by the medical profession that the use of tobacco has a definite effect on the circulation in the feet. It has been shown that during smoking the tiny blood vessels of the feet become squeezed and thus prevent blood from flowing freely. It can be readily seen that for any person with poor circulation in the extremities the added squeezing action of smoking on the blood vessels is not beneficial and may prove definitely harmful. For this reason, it is essential that the diabetic patient with symptoms of a disturbance of circulation in his feet should stop smoking completely and permanently."

Susceptibility to infection makes it particularly imperative, Dr. Samuels points out, that the person with diabetes should guard against athlete's foot, technically known as *tinea* or ringworm infection. "Usually," he says, "these infections are not serious. They clear up either

by themselves or with the use of simple remedies such as soap and water and talcum powder. In the person with diabetes, however, these cracks constitute a real menace because of the opportunities they afford for more dangerous germs to enter the tissues. If these dangerous germs get through the breaks in the skin between the toes, they rapidly penetrate deeper and cause inflammation which may be followed by gangrene. . . . Daily foot soaks with ordinary soap in warm water are just as important as washing the hands. After the bath, the spaces between the toes must be carefully and gently dried and mild antiseptics such as mercurochrome or metapen applied. At the first signs of unusual redness between the toes, or pain of any kind, a doctor should be consulted immediately since delay at this stage may result in the loss of a limb. Too often severe cases of gangrene have been started when the patient treated these infections between the toes by applying a strong solution of iodine. Generally, the tincture of iodine found in the average family medicine chest has been there so long that most of the alcohol has evaporated, leaving a dark, concentrated solution, which can severely burn the skin. Such solutions of iodine should not be used at all, and for the person with diabetes it is safer to avoid the use of iodine on the feet. . . .

"Another frequent cause of serious trouble in the diabetic patient is the use of baking lamps of various kinds on the feet or legs to produce warmth. . . . The skin of the feet and legs of these patients usually is so delicate and the circulation so poor that the use of any of these heating agents is accompanied with the greatest danger. This is especially true because the feet of these patients are usually not so sensitive as those of most people. Thus, the person with diabetes cannot tell when he is being burned, consequently the application of a hot water bottle or other heating apparatus may cause serious blisters and burns before the patient becomes aware of it. Wearing warm hose and using regularly the hot bath will provide more warmth to the extremities in a safer manner than the use of any external heating apparatus."

The symptom complex which is commonly called the onset of tuberculosis, is not the onset but the stage of active progression, characterized by cough, fever and night sweats. Esmond R. Long, M.D.

HYGEIA EDITORIAL GIVES ADVICE TO THE VACATIONING MOTORIST

Says Driving Only a Few Hours Each Day,
With Plenty of Rest and Relaxation,
Will Reduce Chances of Accidents

"The worst example of folly is the person who takes a vacation as a means of rest and relaxation and then exhausts himself in driving either to or from the place where he plans to rest and relax," *Hygeia, The Health Magazine*, declares in an editorial in its August issue.

"If one is planning to drive by motor either as a form of vacation or as a part of a vacation plan, drive only a few hours each day and get plenty of rest and relaxation between the periods of driving," *Hygeia* advises.

Discussing "Motor Accidents on American Highways," the editorial says:

"Sudden death still strikes on American highways. Traffic fatalities still continue as a major cause of death in the United States. The time may yet come when the motor car will be known as Public Killer No. 1. With a record of 35,000 killed and at least 1,300,000 seriously injured each year in motor car accidents, the motor vehicle would seem to be more deadly than the threat of bombers.

"An average big day was Oct. 4, 1940, when 85 people were killed and 1,496 others were critically injured. Sixty-three were men and boys, and 22 were women and girls. One was a philanthropist, another was a prominent doctor, another was a university professor, and still another was a worker in the sugar beet fields. However, the motor car accident is no respecter of persons. The great and the small, the high and the lowly are figured largely among the wreckage. In an accident that just occurred, eight players in Skinnay Ennis' band were subjected to fractures, bruises and hemorrhages. In that case, the driver of a bus carrying the players ran the bus into a telegraph pole near the center of the road.

"In almost every case the driver of the motor car is responsible. Occasionally, it is the machine, but as with accidents now occurring in airplanes, the driver is far more often responsible for the accident than is any breakdown of the machine. For that reason, the National Institute of Health, utilizing its physicians, psychologists, biochemists and biometrists, has com-

pleted an intensive study of 889 truck drivers, with a view of determining accurately the mental and nervous fatigue resulting from hours of driving under actual road conditions. The test showed that driving efficiency decreases most sharply after the first two or three hours, and thereafter decreases gradually. It is impossible to determine the actual point at which driving efficiency drops beyond the safety line. However, the Interstate Commerce Commission now requires that truck and bus drivers be off duty eight hours after driving ten hours. Unquestionably, safety requires the average motorist to avoid long, uninterrupted periods of driving. The latest investigation shows that at least one accident in every hundred is due to the fact that the driver was asleep. People who fall asleep while driving try to conceal the fact. However, if a record is kept of the amount of sleep that a driver has had previous to the time of the accident, one can get a fairly good indication as to the need for sleep at the time of the accident. It is not always an unintelligent man who falls asleep at the wheel; it is, however, always a careless one. In a series of studies made on this point it was found that one accident concerned a college professor hurrying home from a long vacation, another was a salesman who wanted to be on hand in a small town the next morning for a conference, a third was a farmer who had been celebrating on a visit with his nephew in town, and a fourth was a clergyman who got up too early in the morning to keep an appointment.

"Many studies have been made in an attempt to find out how to prevent sleepiness while driving. One invention was a collar with a sharp point which punctured the chin each time that the chin fell forward. Another was an elaborate harness that was hung on the head so that a bell rang when the head dropped forward. Another technic is the frequent drinking of strong coffee at roadside stands. Some drivers are firm believers in soft drinks which contain caffeine. Other drivers have tried to stimulate themselves after long hours by taking the so-called 'pep pills,' which are a drug named benzedrine. The taking of stimulants is like whipping a tired horse. It merely increases the fatigue and pushes forward the moment of collapse."

CESAREAN SECTION

We do not know when or where the first cesarean operation was performed, but it is certain that it was not performed upon the mother of Julius Caesar, for to that time there is no evidence that the operation was ever attempted upon a living woman. Authorities agree that the term "cesarean" was derived from the *lex regia*, in which it was ordered that the midwife must cut the baby from the belly of the dead mother in order that it may have a separate burial. Later the *lex regia* became the *lex cesaria*, hence the term "cesarean."—*Palmer Findley, M.D., F.A.C.S., Journal of the International College of Surgeons, April, 1941.*

"NO DOCTOR OF DELICACY — NO STRANGE DOCTOR —"

Dr. Jesse Bennett performed the first Cesarean section and double ovariectomy upon his own wife in 1794. The operation was not published for the reason, as Dr. Bennett said, "No doctor with any feeling of delicacy would report an operation he had done on his own wife, no strange doctor would believe the operation could be done in the backwoods of Virginia and the mother live, and he'd be damned if he would give them a chance to call him a liar."

Following is an abstract from a letter by Dr. F. H. Garrison to Dr. Howard Kelly concerning Dr. Bennett:

"On January 14, 1794 Jesse Bennett's wife was confined in her first pregnancy. The Bennetts then lived in the frontier settlement in the Shenandoah Valley (Timber Grove). Her labor was a very difficult one due to a contracted pelvis, and Dr. Alexander Humphreys of Staunton was called in consultation. The doctors tried forceps without success. Between the alternatives of craniotomy and Cesarean section the patient chose the latter in spite of the opposition of Dr. Humphreys and his persistent refusal to perform such a dangerous operation.

The case was urgent and Jesse Bennett decided to operate himself. The patient, stretched on a crude plank table over two barrels, was put under the influence of a large dose of opium. Assisted only by two negro women, the courageous frontier surgeon by one quick stroke of the knife laid open the abdomen and uterus and quickly delivered child and placenta. At this stage he delayed long enough to remove both ovaries. As one of the witnesses declared "he spayed her, remarking as he did so, this shall be the last one."

"The wounds were closed with a stout linen thread and contrary to the expectation of every one present, Mrs. Bennett was soon well and active. The child, a daughter, lived to be seventy-seven years of age.

"In appraising this operation of Dr. Bennett's it must be recalled that a successful cesarean section on a living mother was a practically unheard of procedure anywhere in the world at this time."—*Louis Frank in the Transactions of the Southern Surgical Association.*

Clinical-Pathological Conferences

J. J. Moore, M.D., Department Editor.

PRESENTATION OF CASES BY

EDWIN F. HIRSCH, PATHOLOGIST
St. Luke's Hospital
CHICAGO

CORONARY OCCLUSION WITH INFARCTION

A white male physician, aged 79 years, entered St. Luke's Hospital with pain in the chest radiating into both arms and the left side of his neck. The systolic blood pressure was 136 mms. Hg., the diastolic 80. His physical condition was poor. An electrocardiogram demonstrated a normal rhythm, T_1 , T_2 , and T_3 were depressed, T_4 and $S-T_4$ were elevated. Myocardial pathology was diagnosed. The Kahn reaction of the serum was negative. There were 23.8 mgms. per cent Urea N., 44.4 mgms. per cent N.P.N., 100 mgms. per cent sugar, 625 mgms. per cent Cl. of the blood; the sedimentation rate 7 mms. in 45 min. There were 3,750,000 erythrocytes, 16,750 leucocytes per c.mm. and 8.3 grams per cent of hemoglobin in the blood. The temperature ranged from 98.6° to 100° F., the pulse 64 to 104, and the respirations 20 to 30 per minute. The patient was not cyanotic. Sedatives, aminophylline, atropine and oxygen were given. He died six days after the onset of his illness.

Clinical Diagnosis: Coronary thrombosis.

Anatomic Diagnosis: Calcified atherosclerosis and thrombosis of the anterior descending branch of the left coronary artery; Extensive recent and old fibrous infarcts of the myocardium of the left ventricle of the heart;
mural thrombus of the left ventricle of the heart;
marked atherosclerosis of the aorta and its main branches;
generalized senile arteriosclerosis;

adhesive fibrous and acute fibrinous pericarditis;
ulcerated carcinoma of the pylorus of the stomach;
metastatic carcinoma of the perigastric and periaortic lymph nodes;
marked senile nephrosclerosis.

The pericardial sac was extensively obliterated by fibrous and fibrinous adhesions. The small amount of pericardial fluid was turbid. The heart weighed 425 grams. There were fibrous and fatty changes of the linings of the coronary arteries. In the anterior descending branch of the left coronary artery 1.5 cms. beyond its origin was a marked narrowing of the lumen and a calcification of the wall. The channel here was occluded by a firm grey and red thrombus, 2 mms. in diameter and 7 mms. long. In the lateral wall of the left ventricle, beginning at the apex and extending toward the base for 6 cms. and laterally from the septum for 4 cms., was an extensive recent infarct of the myocardium. It also extended the full width of the septum from the apex for 6 cms. A mural thrombus 4 by 2.5 cms. and 1 to 1.5 cms. thick covered the anterior wall of the left ventricle at the apex. The valvular structures and the right side of the heart had no unusual changes.

A mass of firm grey retracted tissue extended 4.5 cms. along the lesser curvature of the stomach from the pylorus, and involved 2 cms. of the posterior wall. Opposite this in the lining was an ulcerated carcinoma 6 cms. long and 9 cms. in circumference. A mass of enlarged lymph nodes in the root of the mesentery of the small bowel was 4 by 3 by 2.5 cms. Histologically, the carcinoma cells in the primary tumor of the stomach were in small aggregates, occasionally in tubules. The lymph node metastases had more of the glandular structures.

DISCUSSION

The unusual feature of this case is the presence of a fairly large carcinoma of the stomach, which clinically was unsuspected and apparently had caused little clinical symptoms. The infarct of the myocardium also was much more extensive than the clinical studies had indicated. Symptoms due to cardiac disorders and referred to the abdomen occur frequently. In this patient grave lesions in both the heart and the stomach were present.

CEREBRAL HEMORRHAGE FROM RUPTURED ANEURYSM

This white salesman, aged 52 years, was brought to St. Luke's Hospital in an ambulance. He had collapsed suddenly in a hotel and when admitted was in coma and was cyanotic. The systolic blood pressure was 150 mms. Hg., the diastolic 100. The pulse was 120 per minute and the respirations were labored. He had a right facial paralysis and a left hemiplegia. In spite of supportive treatment, his temperature rose to 106° F. rectally, and he died 36 hours after the onset of coma.

Clinical Diagnosis: Cerebrovascular accident.

Anatomic Diagnosis: Spontaneously ruptured saccular aneurysm of the anterior communicating branch of the Circle of Willis; extensive subpial hemorrhage of the base and lateral surfaces of the brain; bloody spinal fluid; marked senile arteriosclerosis of the cerebral blood vessels; etc.

The brain weighed 1155 grams. An extensive subpial hemorrhage at the base of the brain concealed the structures in this region, tensely filled the pia arachnoid and spread over the lateral surfaces of the cerebral hemispheres, especially along the Sylvian fissures. Dissection of the Circle of Willis demonstrated a saccular aneurysm of the anterior communicating branch where it arose from the anterior cerebral, 1.5 by 1.3 by 1 cms. On the ventral surface was a rupture of the sac. On many surfaces made by sectioning the formalin-hardened brain, there were no other unusual changes.

DISCUSSION

Extensive subpial hemorrhages at the base of the brain frequently are due to ruptured aneurysms.

These aneurysms often are in the vessels of the Circle of Willis. The clinical symptoms and death are caused by the hemorrhage which occurs following rupture. The force of the escaping blood sometimes tears the brain tissues at the base with hemorrhage into the ventricular system.

BRONCHOGENIC CARCINOMA

A white male office clerk, aged 36 years, entered St. Luke's Hospital because of progressive fatigue and a loss of 15 pounds weight in two months, and nausea with vomiting for one week. He had had frequent attacks of pain in the right side of the chest which were considered to be pleurisy. Six months before admission to St. Luke's Hospital, the severity of the pain forced him to bed. He had slight dyspnoea with exertion but no cough. Several years before he had pneumonia of the right lung, complicated by empyema and treated by surgical drainage. The systolic blood pressure was 108 mms. Hg., the diastolic 62. The only positive physical findings were diminished breath sounds and resonance over the lower lobe of the right lung.

The blood had 4,060,000 erythrocytes and 10,100 leucocytes per c.mm. and 11.8 grams per cent hemoglobin; urea N. 10.7 mgms. per cent, total N.P.N. 29.3 mgms. per cent, sugar 93 mgms. per cent, cholesterol 200 mgms. per cent and an alkali reserve of 53.5 volumes per cent. The sedimentation rate was 73 mms. in 45 minutes; the urine, stool, and sputum had nothing unusual; the Kahn test of the serum was negative; the basal metabolic rate was minus 27. Roentgen films of the chest had an increased density in the right upper lobe of the lung, and slight apical changes of the left lung. These were interpreted as tuberculosis. While in the hospital he had attacks of coughing, productive of a thin blood streaked sputum. He was discharged after one week in the hospital for further care in a sanatorium for tuberculous patients. Two weeks later, he reentered the hospital because of nausea, emesis, loss of weight and severe headaches. The physical findings had not changed. Under supportive treatment he failed to improve and died four weeks after his first admission to the hospital.

Clinical Diagnosis: Pulmonary tuberculosis; tuberculous enteritis (?); tuberculosis of the suprarenal glands (?).

Anatomic Diagnosis: Bronchogenic carcinoma of the upper lobe of the left lung;

carcinoma compression of the main left branch of the pulmonary artery;

metastatic carcinoma of the tracheobronchial lymph nodes, liver, kidneys, right suprarenal gland, and pancreas; etc.

The bronchogenic carcinoma extended 6.5 cms. into the medial portion of the upper lobe of the left lung and was adherent to the thoracic spine and pericardium. The growth of tumor tissue outside of the lung surrounded the left main branch of the pulmonary artery and markedly compressed the lumen. Three centimeters from its origin, the lining of the main bronchiole to the left upper lobe was puckered in a region 2 cms. in diameter and the tumor mass was directly continuous. Surfaces made by cutting the tumor were firm grey tissues with fine yellow mottlings, portions necrotic and pigmented with carbon. The hilar lymph nodes had metastases. The right pleural space was obliterated by fibrous adhesions. There were small metastases 2 to 5 mms. in diameter in the apex of each lung. There were many metastases in the liver ranging to 1.5 cms. in diameter, a nodule 2.5 cms. in diameter in the body of the pancreas, many 0.3 to 1.5 cms. in diameter in both kidneys, and one, 4 cms. in diameter, in the upper pole of the right suprarenal gland. Permission for an examination of the head was not granted.

Sections of the primary tumor and the metastases had a dense fibrous stroma with large and small masses of carcinoma cells arranged in mosaics. The individual cells were medium in size, had a granular cytoplasm and large vesicular nuclei.

DISCUSSION

Carcinomas of the lung produce a wide range of clinical symptoms. These symptoms result from either the primary tumor or its metastases. Not infrequently the symptoms produced by the metastases dominate the clinical course and the small primary focus escapes notice. This case is an example. Although actually the primary growth in the lung had an appreciable size, most of the symptoms of the patient were caused by metastases into the viscera and compression of the left branch of the pulmonary artery.

NEW SECRET FOUND IN BRAIN SURGERY

NEW HAVEN, Conn.—Two Yale professors proposed “detouring” blood to the brain, when main arteries have closed artificially as a possible new treatment to overcome hardening of the arteries and cerebral thrombosis.

Describing their experiments on monkeys in the Yale Journal of Biology and Medicine, Dr. William J. German and Dr. Max Taffel said muscles at the side and back of the head might be used to “re-route” blood.

LONDON SNAPS PEACHES UP AT 6 BITS EACH

LONDON—The coming of warm weather and ripening of fruit brought some rare bargains in London's crowded markets recently.

One store had peaches which a Georgia grower wouldn't bother to send to market and the price was 75 cents each.

“We've sold quite a few,” said a clerk.

Lots of knotty little strawberries were on display at another store—\$3.80 a pound.

A shop offered unrationed cheese from Wisconsin at \$1 a pound.

Tomatoes have come down. You could get them at \$1 a pound.

String beans sold for 90 cents a pound.

FAMOUS MEDICAL SAYINGS

“Dr Case,” the famous quack of the 17th Century, originated the present practice of “medical advertising” on-a-large-scale. It prompted Joseph Addison the essayist to say in the Tattler: “Case made more money by his couplets than Dryden made by all his poetical works put together.” Examples of Case's promise-bearing couplets are these:

“Within this place
Lives Doctor Case.”

or:

“All ye that are on Venus' Race,
Apply yourselves to Dr. Case;
Who with a box or two of pills,
Will soon remove your painful ills.”

Aesclepiades was a Greek doctor among the Romans. He it was who was responsible for the famous saying that the physician's main duty is to cure “Tuto, cito, et jucunde” (safely, quickly, and pleasantly). As a result, he never gave a bitter dose of medicine in his life but prescribed only the most savory diets. He was the first quickly to divide diseases into acute and chronic.

—Exchange.

Tuberculosis moves so slowly that we measure its progress against a man's life. Public health men have begun to talk of family epidemics taking two or three generations to run their course but a longer perspective may be needed to reveal the play of major cycles. Geddes Smith in “Plague on Us” pub. by Commonwealth Fund, 1941.

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

Robert S. Berghoff, Chairman of the Scientific Service and Post Graduate Education Committee, announces that the Committees have prepared a new list of suggested subjects and speakers from which county societies may select programs. Copies of the publication have been mailed to presidents and secretaries of county medical societies.

Harry R. Hoffman of Chicago has been appointed State Alienist by Governor Green to succeed the late H. Douglas Singer. Dr. Hoffman is Associate Clinical Professor of Nervous and Mental Diseases at Rush Medical College and has been Director of the Behavior Clinic of the Criminal Court of Cook County since its inception in 1931. For 30 years, Dr. Hoffman has been actively engaged in the private practice of neuro-psychiatry.

Samuel M. Feinberg has recently been elected to honorary membership in the Argentine Society for the Study of Allergy.

Governor Dwight H. Green has reappointed Dr. Julius H. Hess of Chicago as a member of the Board of Welfare Commissioners of the State of Illinois, and has also appointed him as a member of the Advisory Board to the Division for Delinquency Prevention in the Department of Public Welfare.

Miss Jean McArthur, Secretary of the Educational Committee, was invited to participate in a group discussion of "Participation of Professional Groups in Health Education" before the American Public Health Association in its Eighth Institute on Public Health Education at Atlantic City, October 11.

Dr. Herman H. Cole of Springfield, has been selected to act as chairman of the committee on arrangements for the 1942 annual meeting of the Illinois State Medical Society, to be held on May 19, 20, 21, 1942 in Springfield. Within a short time the various committees will be named, and plans started for another fine annual meeting. The attendance at the 1941 meeting held in Chicago was by far the largest ever registered at the annual meeting with a total registration of 4,109. All available facilities in Springfield for a successful meeting will be inspected soon, and definite arrangements made for the selection of the meeting place.

Doctor Edmund Jacobson will present a paper entitled, "Cultivated Relaxation for the Elimination of Nervous Breakdowns," at the 20th Annual Session of the American Congress of Physical Therapy in Washington, D. C., on September 5th.

POST GRADUATE CONFERENCES

September 4th — 9th Councilor District sponsored a Post-Graduate Conference at Mount Vernon. The program was presented by Doctors V. G. Urse, Franklin J. Corper and Francis E. Senear of Chicago and Doctors M. L. Klinefelter and J. W. Thompson of St. Louis.

October 8 — 1st Councilor District — Elgin, Illinois.
October 16 — 5th Councilor District — Lincoln, Illinois.

November 6 — 8th Councilor District — Danville, Illinois.

November 18 — 7th Councilor District — Effingham, Illinois.

The Fourth Annual Forum on Allergy will be held in Detroit, Michigan January 10th and 11th, 1942.

COMING MEETINGS

September 9 — Effingham County Medical Society meeting at the Benwood Hotel, Effingham, dinner at 6:30. Subject, Pneumonia.

September 12 — Jersey-Green County Medical Society meeting at Whitehall, Illinois beginning with a dinner at 6:30. Dr. Carroll W. Stuart of Chicago will speak on "Surgical Problems of the Head and Neck."

MARRIAGES

RUSSELL W. BLANCHARD, Council Bluffs, Iowa, to Miss Muriel W. Alexander of Oglesby, Ill., in June.

HUGH I. CONN, Newman, Ill., to Miss Virginia Thompson at Danville, Ind., June 12.

BENJAMIN FRANKLIN HOOPES, Bloomington, Ill., to Miss Frances Kelly of Chicago recently.

DUNCAN D. MONROE, Alton, Ill., to Miss Alberta Martin of Godfrey, June 1.

JOHN W. OVITZ JR., Sycamore, Ill., to Miss Virginia Noyes of Evanston, June 7.

DEATHS

JOSEPH FRANCIS DOLAMORE, Galena, Illinois, Rush Medical College 1893. Held professorships at Rush and Northwestern Medical Schools. Associated with the late Dr. E. Fletcher Ingalls. Member of Phi Rho Sigma. Died July 27th of arteriosclerosis, aged 70.

THOMAS WALTER GILLESPIE, Victoria, Illinois, died at his home on July 5, 1941. He was born at Wisconsin Dells, Wisconsin, September 10, 1869; graduated from Rush Medical College, Chicago in 1896, and practiced in Peoria for some 20 years then moved to Victoria where he practiced until his death. For a number of years, while practicing in Peoria, was Councilor for the 4th District of the Illinois State Medical Society and during this period served his district well at all times.

Dr. Gillespie was married to Miss Beatrice Barlow, November 15th, 1917, who with a daughter, three brothers and three sisters are left to mourn his passing.

For many years, Dr. Gillespie was quite active in medical society work, and attended many medical meetings throughout the state. He was Councilor for his district during the World War, and conducted that office most satisfactorily during that trying period. He was a regular attendant at all meetings of the Council and participated in the many important deliberations during his tenure of office.

At his own request, the body was cremated and his ashes buried in the family lot in Springdale Cemetery at Peoria.

FRANK B. KIRBY, Chicago, Illinois, Jefferson Medical College, 1902, Died August 19. He was a lecturer for Abbott Laboratories and lived in Chicago and Evanston for 30 years.

WILLIAM B. PECK, 70 years old, died August 20th at Freeport. He was founder of the Interstate Postgraduate Medical Association of North America. He served as its managing director.

LEWIS HERTZ LIPPMAN, Chicago; Chicago College of Medicine, 1913; died August 9, age 53.

PHILIP C. GOERGEN, Chicago; Loyola University School of Medicine, 1919; died July 2nd.

GEORGE L. BROOKS, Chicago; Chicago Homeopathic Medical College 1901; died July 2, age 63 years. He was vice chief of staff at the Chicago Memorial Hospital, where he had served in the department of medicine since 1901.

ROSCOE LELAND BARLOW, Hindsboro; St. Louis University School of Medicine, 1917; died July 29 from a heart ailment.

JOHN HIGGS, East St. Louis; Missouri Medical College, 1885; died July 14. Dr. Higgs practised medicine in East St. Louis until retirement in 1936.

PHILIP GRIESBAUM, Lebanon, Washington University Medical School 1910; died July 28, aged 57 years.

CHARLES SUMMER DAVIS, Champaign, Eclectic Medical College, 1890; died August 7, age 75. Poor health forced him to retire in 1922.

WALTER M. HAGGETT, Chicago, University of Iowa Medical School, 1887; died July 17, age 83. Dr. Haggett was a member of the Fifty Year Club, having practiced in Nauvoo for nearly fifty years.

ERNEST C. DAY, Chicago, Rush Medical College, 1936, died July 20 as result of automobile accident while in camp in Tennessee where he was with the 108th Medical Regiment.

CHARLES JOSEPH SWAN, eye, ear, nose and throat specialist who had practiced in Chicago since 1892 and in Evanston since 1909, died August 13th in his home at 1818 Hinman Avenue, Evanston.

C. E. SOULE, 78 years old, veteran member of the Beardstown school board, died at his home August 14 after an illness of two months. He had practiced his profession in Beardstown continuously since August 1905. On September 20, 1939 he was honored by the Cass County Medical Society for having completed a half century in the practice of medicine.

STANLEY THOMAS CAVINS, Stanford, Ill.; Baltimore Medical College, 1903; aged 67; died, June 21.

JOSIE C. KENNEDY DIEDERICH, Rochelle, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; member of the Illinois State Medical Society; aged 68; died, June 7.

ROBERT HUTCHINSON, Capron, Ill.; Rush Medical College, Chicago, 1876; aged 90; died, June 8, of pneumonia.

THOMAS B. KERLEY, Simpson, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 76; died, June 27, of cerebral hemorrhage.

WALTER HERMAN RIETZ, Peoria, Ill.; Rush Medical College, Chicago, 1915; aged 51; died, June 5, in St. Francis Hospital of carcinoma of the rectum.

FRED CLARK TAYLOR, Peru, Ill.; Medical College of Indiana, Indianapolis, 1894; aged 68; on the staff of the People's Hospital, where he died, June 29, of peritonitis following an operation.

ALDORA J. TYLER, Clinton, Ill.; Woman's Medical College, Chicago, 1885; aged 79; died, June 7.

JOHN EDWARD LAWRENCE WALSH, Evanston, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; Rush Medical College, Chicago, 1887; aged 79; died July 1, in St. Luke's Hospital, Chicago, of coronary thrombosis and carcinoma of the stomach.

ANTHONY KIMMEL WARNER, Chicago; University of Maryland School of Medicine, Baltimore, 1885; on the staff of the American Hospital; aged 77; died, June 27, of cerebral hemorrhage and arteriosclerosis.

EUGENE L. BAKER, Oak Park, University of Illinois College of Medicine, 1925; died July 20th as result of automobile accident while stationed with 108th Medical Regiment in Tennessee.

"The organized medical profession was confronted with the task of providing . . . people with medical care dispensed according to the democratic principle of equal rights for all. At the same time, it was confronted with the militant advocacy, by various political and social welfare leaders, of federal control of medical care . . . the government was urged by these self-appointed leaders to perform a similar function (similar to wartime control of industry) with regard to institutions which have to do with the public health.

"The medical profession recognized this challenge to our democratic institutions. It reiterated again and again the desirability of maintaining a democratic system of medical care. . . Furthermore, it recognized the value of community responsibility and management, factors in successful management of institutions, neglected until recently in the business world. All of these principles, indispensable in a democratic system of medical care, were finally incorporated into a platform for the formation of a national health program.

". . . . However, we are living today in a war of ideas. This war, which is being carried on in the press and over the radio, may be as destructive of individual rights, of existing institutions, as a war involving armaments. In this respect, the destiny of the organization of medicine is linked with the destiny of every other organization."—Mrs. R. E. Mosiman, chairman, Public Relations Committee of the Woman's Auxiliary to the A.M.A. in the January *Bulletin* of that organization.

Strange, when you come to think of it, that of all the countless folk who have lived before our time on this planet not one is known in history or in legend as having died of laughter.—*Max Beerbohm*.

THE SIMPLE SERUM

(*Dr. Charles Armstrong of the United States Public Health service says the common cold stimulates white blood cells in the nose and these immunize mice against encephalitis and poliomyelitis. Colds probably are protectors of men as well, he believes.*)

If you worry that a virus

Will cause havoc in your iris,

If you fear to let coryza get a hold,

Just remember that the giants

Of the Hippocratic science

Have found virtue in the ordinary cold.

If your thoughts are dark and chilly

At the mention of bacilli

And the specter that the common snuffle throws,

You are likely prejudicial —

Doctors find it beneficial

To possess at times a ruddy, running nose.

For the irksome nasal thickness

Kills the bug of sleeping sickness,

Kicks the paralytic germ right in the pants,

So if you have infection

Of the mucus, it's protection;

You can have it — I prefer to take a chance!

Dow Richardson,
Chicago Daily Tribune

SMILES WHILE LONDON CRASHES

While London rocks with the detonations of Nazi bombs, the *West London Medical Journal* calmly devotes a few pages to humor. It records a "howler" in a school examination, where a boy said *pax in bello* meant "freedom from indigestion." In another examination the story of Queen Elizabeth and Sir Walter Raleigh got this startling twist:

". . . Queen Elizabeth rode through Coventry without any clothes on; but Sir Walter Raleigh seeing her, stopped her horse and promptly flung his cloak around her, saying at the same time: '*Honi soit qui mal y pense*,' which means, 'Your need is greater than mine.' The Queen replied: '*Dieu et mon droit*,' which means: 'My God you are right'."

Finally we are told of this notice in a Scottish church:

"Those in the habit of putting buttons instead of coins in the collection plate will please put in their own buttons and not those from the cushions on the pews."

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BRIEF HISTORICAL NOTES ON MEAD'S CEREAL AND PABLUM

HAND in hand with pediatric progress, the introduction of Mead's Cereal in 1930 marked a new concept in the function of cereals in the child's dietary. For 150 years before that, since the days of "pap" and "panada," there had been no noteworthy improvement in the nutritive quality of cereals for infant feeding. Cereals were fed principally for their carbohydrate content.

The formula of Mead's Cereal was designed to supplement the baby's diet in minerals and vitamins, especially iron and B₁. How well it has succeeded in these functions may be seen from two examples:

(1) As little as one-sixth ounce of Mead's Cereal supplies over half of the iron and more than one-fifth of the vitamin B₁ minimum requirements of the 3-months-old bottle-fed baby. (2) One-half ounce of Mead's Cereal furnishes all of the iron and two-thirds of the vitamin B₁ minimum requirements of the 6-months-old breast-fed baby.

That the medical profession has recognized the importance of this contribution is indicated by the fact that cereal is now included in the baby's diet as early as the third or fourth

month instead of at the sixth to twelfth month as was the custom only a decade or two ago.

In 1933 Mead Johnson & Company went a step further, improving the Mead's Cereal mixture by a special process of cooking, which rendered it easily tolerated by the infant and at the same time did away with the need for prolonged cereal cooking in the home. The result is Pablum, an original product which offers all of the nutritional qualities of Mead's Cereal, plus the convenience of thorough scientific cooking.

During the last ten years, these products have been used in a great deal of clinical investigation on various aspects of nutrition, which have been reported in the scientific literature.

Many physicians recognize the pioneer efforts on the part of Mead Johnson & Company by specifying Mead's Cereal and PABLUM.

Pablum is a palatable mixed cereal food, vitamin and mineral enriched, composed of wheatmeal (farina), oatmeal, cornmeal, wheat embryo, beef bone, brewers' yeast, alfalfa leaf, sodium chloride, and reduced iron.

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Feb. 1935. Vol. XLV, No. 2, 149-154*

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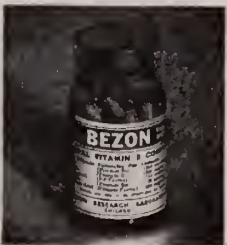
Thiamin	(Vitamin B ₁)	1000 micrograms
Riboflavin	(Vitamin G)	1000 micrograms
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Book Reviews

A PRIMER FOR DIABETIC PATIENTS: By Russell M. Wilder, M.D., Ph.D., F.A.C.P., Professor and Chief of the Department of Medicine of the Mayo Foundation, University of Minnesota, and Head of Section on Metabolism Therapy, Division of Medicine, of the Mayo Clinic.

Dr. Wilder has prepared a handbook for diabetics as an authoritative guide for following physician's instructions, a handbook of "things you should do and things you should not do."

He discusses insulin (including the new protamine-zinc) what it is, the proper dosage, and how to administer it. This little Primer is written primarily for the laity, and many physicians may want to recommend it for close study by diabetic patients under their care. (W. B. Saunders Company, Philadelphia. Price \$1.75).

FIRST AID IN EMERGENCIES: By Eldridge L. Eliason, M.D. Professor of Surgery, University of Pennsylvania School of Medicine; Professor of Surgery, University of Pennsylvania Graduate School of Medicine; Surgeon, University of Pennsylvania, Presbyterian and Philadelphia General Hospitals.

Dr. Eliason has collected and compiled a modern, dependable little book covering emergencies that arise in everyday life — in the home, street, factory or camp. The book is assembled with each page carrying a title heading for quick reference, so that when any emergency does arise, no trouble will be experienced in finding principles and procedures which can be applied until medical assistance arrives. A handy book for any layman's home, camp, or business organization for reference and use until the physician arrives. (J. B. Lippincott Company, Philadelphia. Price \$1.75).

THE MASK OF SANITY, An Attempt to Reinterpret the So-called Psychopathic Personality: by Hervey Cleckley, B.S., B.A., M.D., Professor of Neuropsychiatry, University of Georgia

School of Medicine, Augusta, Georgia.

Here we have assembled for the general practitioner, a multitude of case histories, compiled carefully and assiduously by a physician well qualified to discuss the "forgotten man" of psychiatry. This little volume attempts to present some of these mental cases as they actually appear in life — an attempt to peer behind the "mask of sanity" some of them wear so well. (The C. V. Mosby Company, St. Louis).

ORBITAL TUMORS. Results Following the Transcranial Operative Attack: by Walter E. Dandy, M.D. Adj. Professor of Neuro-Surgery at Johns Hopkins University School of Medicine, Baltimore, Maryland.

This publication, (extensively illustrated) presents the results of Dr. Dandy's technique (intracranial approach by which the combined intraorbital and intracranial growths can be removed at the same operation) in a series of twenty-four cases. It also dwells upon the diagnosis and pathology of orbital tumors, and should be of special appeal to ophthalmologists, surgeons, especially neurosurgeons, neurologists. (Oskar Piest — New York. Price \$5.00).

COMPLETE WEIGHT REDUCER: by C. J. Gerling, with foreword by Winfield Scott Pugh, B.S., M.D.

Is a book for lay reading in which the author has cooperated nicely with the medical profession to expose the ever-popular reducing fads in diet, teas, chewing gums, pills, powders and liquids. The make-up of this book is similar to a dictionary, and can be used quickly and easily as reference. (Harvest House, New York. Price \$3.00).

THE AVITAMINOSES. The Chemical, Clinical and Pathological Aspects of the Vitamin Deficiency Diseases, by Walter H. Eddy, Ph.D., and Gilbert Dalldorf, M.D.

Eddy and Dalldorf have completely rewritten and revised their comprehensive treatise on the pathological responses to vitamin deficiencies in order to in-

(Continued on page 30)

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The advertisement features a dark, textured background. In the upper left, a tube of KOROMEX is shown, with its cap removed and a small amount of product squeezed out. To its right is another tube of H-R Emulsion Cream, also with its cap removed. Below the KOROMEX tube is a circular container with a label that reads "H. R. KOROMEX 75". To the right of the emulsion cream tube is a scalpel with a curved blade. The bottom of the advertisement contains a white rectangular box with text.

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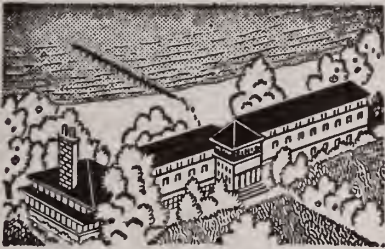
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BOOK REVIEWS (Continued)

corporate the many advances made in this field during the last three years. The diseases caused by vitamin deficiency (rickets, beriberi, pellagra, scurvy, etc.) are discussed extensively, as well as the chemical nature of the various vitamins. By coordinating clinical, chemical and pathological points of view, the authors have presented a book which should prove of assistance and interest to many. (The Williams & Wilkins Company, Baltimore. Price \$4.50).

THE STORY OF CLINICAL PULMONARY TUBERCULOSIS by Lawrason Brown, M.D., Late Director of Trudeau Sanatorium, and Lecturer in Trudeau School of Tuberculosis.

This story dips into the history of tuberculosis and gives us, from 1700 to the present time, the highlights in the progress of medicine. The material contained in this volume has been compiled and published from the lectures on the history of tuberculosis delivered by Dr. Brown for a number of years at Trudeau School of Tuberculosis. A great deal of this material had been prepared before his death, but various chapters have been written entirely from notes, and the study has been brought up to date by other physicians who worked with Dr. Brown at Trudeau. (The Williams & Wilkins Company, Baltimore. Price \$2.75).

THE MARCH OF MEDICINE, New York Academy of Medicine, Lectures to the Laity.

More than ever today the physician must call to the attention of the American public the progress of medicine. Again and again physicians are requested to appear before lay groups to discuss medical subjects. Here we have a group of such presentations as various members of the New York Academy of Medicine have been called upon to deliver. This little volume will prove of great assistance to physicians called upon to present talks to lay groups, and can be used as reference source for many new and vital subjects. (Columbia University Press, New York. \$2.00).

START TODAY. Your Guide to Physical Fitness: by C. Ward Crampton M.D., Major, Medical Reserve Corps, United States Army, and former Director of the Department of Physical Education and Hygiene, New York Board of Education, and Assistant Professor of Medicine, Post Graduate Medical School and Hospital.

With United States seething with the problem of military preparedness, the question of physical fitness becomes one of utmost importance today. This book, with a preface by Dr. Alexis Carrell, has been prepared for the medical examiner of draftees, those interested in the physical fitness of this nation, and

(Continued on page 34)



In the Aim toward OPTIMUM NUTRITION

With the spotlight of national defense focused on improving the general health of our population, the problem of promoting a state of optimum nutrition in his patients becomes the concern of every physician. Ample clinical evidence attests that buoyant health, maximum possible growth, and resistance to disease are directly related to the nutritional state.

With its wealth of essential nutrients—not only vitamins and minerals but also biologically adequate protein, highly emulsified fat, and readily utilized carbohydrate—New Improved Ovaltine will play an important role in achieving and maintaining optimum nutrition.

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for the man in service himself. It would prove a valuable addition to any camp library throughout the country. (A. S. Barnes & Company, New York. Price \$1.75).

INTRODUCTION TO PSYCHOBIOLOGY AND PSYCHIATRY, by Esther Loring Richards, M.D., Sc.D., Associate Professor of Psychiatry, Johns Hopkins University, and Psychiatrist in Chief of Baltimore City Hospitals.

Dr. Richards has written and published this book for the use of student nurses primarily, in order that they may better understand human behavior in its relationship to the practice of their profession. The style in which this book is written is clear and precise, and the author has succeeded in making the material, not only informative, but interesting as well. (The C. V. Mosby Company, St. Louis).

EFFECTIVE LIVING by C. E. Turner, A.M., Sc.D., Dr. P. H., and Elizabeth McHose, B.S., M.A.

C. E. Turner as Professor of Biology and Public Health at Massachusetts Institute of Technology, and Elizabeth McHose, Director of Physical Education for Girls and Chairman of the Health Council, Senior High School, Reading, Penna. have written

and published a textbook for the use of the modern youth. This publication would be of little personal interest to a physician unless he were called upon to make a recommendation of a textbook for class use in his local community. Such being the case, we would like to call this work to his attention for serious consideration. (The C. V. Mosby Company, St. Louis. Price \$1.90).

Books Received

The following books have been received for reviewing, and are herewith acknowledged. This listing should be considered as a sufficient return for the courtesy of the sender. Books that appear to be of unusual interest will be reviewed as space permits each month. Readers desiring additional information relative to books listed, may write the Editor who will gladly furnish same promptly.

CLINICAL IMMUNOLOGY, BIOTHERAPY AND CHEMOTHERAPY in the Diagnosis, Prevention and Treatment of Disease: By JOHN A. KOLMER, M.D., M.D., Dr. P. H., Sc.D., LL.D., L.H.D., F.A.C.P., Professor of Medicine, Temple University School of Medicine; Di-



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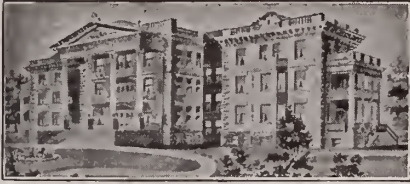
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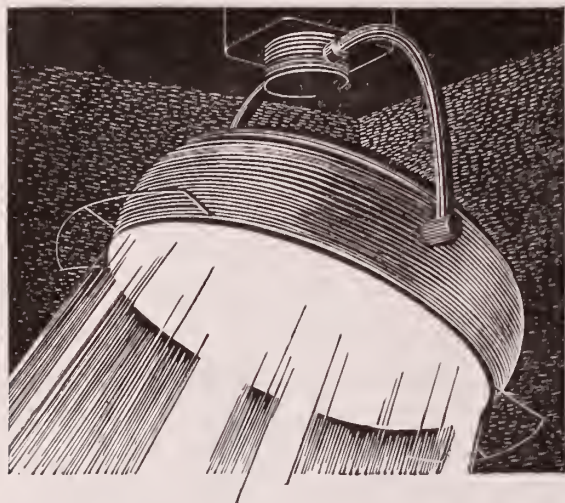
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rector of the Research Institute of Cutaneous Medicine; and LOUIS TURR, M.D., Assistant Professor of Medicine and Chief of Clinic of Allergy and Applied Immunology, Temple University School of Medicine. 941 pages with 27 illustrations (including 11 color plates). Philadelphia & London: W. B. Saunders Company, 1941. Price \$10.00.

OUTLINES OF INDUSTRIAL MEDICAL PRACTICE: by Howard E. Collier, M.D., Ch.B., formerly reader in Industrial Hygiene and Medicine, University of Birmingham. A William Wood Book. The Williams & Wilkins Company, Baltimore, 1941. Price \$5.00.

ESSENTIALS OF PHARMACOLOGY AND MATERIA MEDICA FOR NURSES: by Albert J. Gilbert, M.D., Instructor of Pharmacology, Aultman School of Nursing, Canton, Ohio; Formerly Instructor of Pharmacology and Therapeutics, John Sealy College of Nursing; Formerly Instructor of Pharmacology, University of Texas Medical School, Galveston, and Selma Moody, R.N., Instructor in Nursing Arts, The Presbyterian Hospital of the City of Chicago. The C. V. Mosby Company, St. Louis. 1941. Price \$2.25.

MICROBIOLOGY, PRINCIPLES OF: By Francis E. Colien, B.S., M.S., Ph.D., F.A.P.H.A., Associate Professor of Bacteriology and Preventive Medicine in The Creighton University School of Medicine, and Ethel J. Odegard, R.N., A.B., M.A., Instructor in Sciences Applied to Nursing, College of Saint Tresa, Winona, Minnesota. The C. V. Mosby Company, St. Louis. 1941. Price \$3.00.

TEXTBOOK OF BACTERIOLOGY: By R. W. Fairbrother, D.Sc., M.D., M.R.C.P., Director of the Clinical Laboratory, Manchester Royal Infirmary; Special Lecturer in Bacteriology, University of Manchester; Major, R.A.M.A.; Late Research Fellow in Bacteriology, Lister Institute, London. Third Edition. The C. V. Mosby Company, St. Louis. 1941. Price \$5.00.

THE CARE OF THE AGED, (Geriatrics) by Malford W. Thewlis, M.D. Attending Specialist, General Medicine, United States Public Health Hospitals, New York City; Attending



Physician, South County Hospital, Wakefield, R. I.; Special Consultant, Rhode Island Department of Public Health. Third Edition, entirely rewritten, with 50 illustrations. The C. V. Mosby Company, St. Louis. 1941. Price \$6.00.

CLINICAL AND EXPERIMENTAL INVESTIGATIONS ON THE GENITAL FUNCTIONS AND THEIR HORMONAL REGULATION: by Bernhard Zondek. The Williams & Wilkins Company, Baltimore. 1941. Price \$4.50.

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SULFANILAMIDE EFFECTIVE AGAINST FLARE-UPS OF RHEUMATIC FEVER

Evidence that the maintenance of certain levels of sulfanilamide in the blood by means of administering small daily doses is effective in preventing hemolytic streptococcal infections and the consequent flare-ups of rheumatic fever in persons known to be subject to recurrences is presented in *The Journal of the American Medical Association* for July 19 by A. F. Coburn, M.D., and L. V. Moore, M.D., New York.

The two authors point out that a previous study had indicated that the maintenance throughout the school year of a certain level of sulfanilamide in the blood protected the children against streptococcal pharyngitis (inflammation of the pharynx) and rheumatic recurrences. "One factor that it was impossible to control in the New York study," they say, "was the increasing age of the group. Between 1936 and 1939 many of the children passed puberty, and, as is well recognized, rheumatic subjects tend to have fewer recurrences in adolescence than during childhood. It was therefore possible to regard the increasing age of our patients as largely contributory to the decreasing incidence of rheumatic fever.

"One way of determining whether increasing age was significant in our results was to withdraw sulfanilamide from the patients who received prophylactic doses in the period 1936-1939. This we did during 1939-1940 to a group of 100 patients, mostly adolescents. None of these 100 patients had had streptococcal pharyngitis or manifestations of rheumatic activity while they received sulfanilamide. Since the prophylactic doses have been discontinued the patients have lived in the same environment and have received the same clinical and laboratory

examinations as previously reported. Thirty-two of these 100 patients contracted hemolytic streptococcal pharyngitis during the first twelve months following the withdrawal of sulfanilamide, and in 40 per cent of these untreated, infected patients rheumatic fever developed. . . .

"These follow-up observations show that the rheumatic children who escaped streptococcal infection and rheumatic activity while receiving sulfanilamide prophylactically between 1936 and 1939 were still susceptible in 1940 to both streptococcal pharyngitis and rheumatic fever.

"It seems justifiable, therefore, to conclude that the absence of rheumatic recrudescence in the sulfanilamide-treated subjects previously reported was due to the drug and not to a change in susceptibility. It is also clear that the prophylactic effect of sulfanilamide does not exert any beneficial effect beyond the period of treatment."

At practically any age and especially in young adult life, respiratory tuberculosis seems a disease of more serious prognostic import among females than among males.—Lancet editorial, Feb. 22, 1941.

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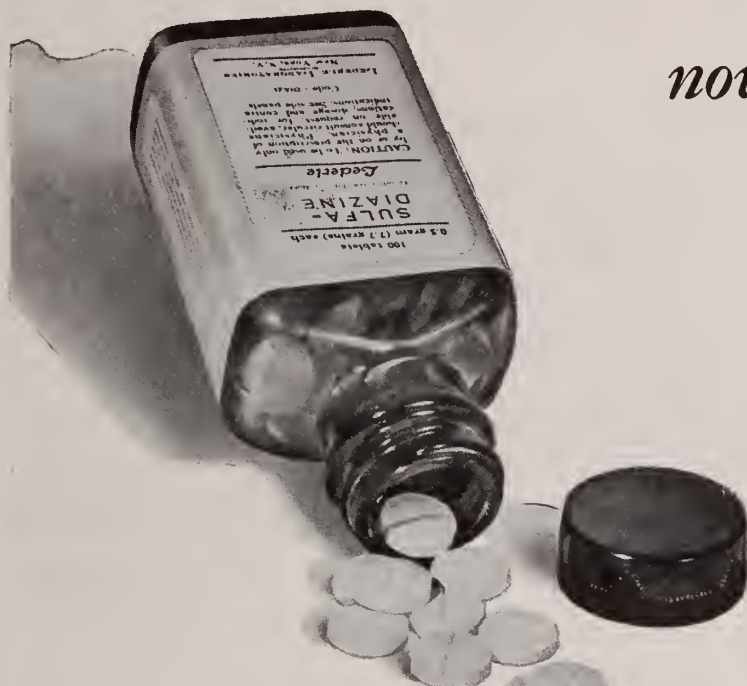
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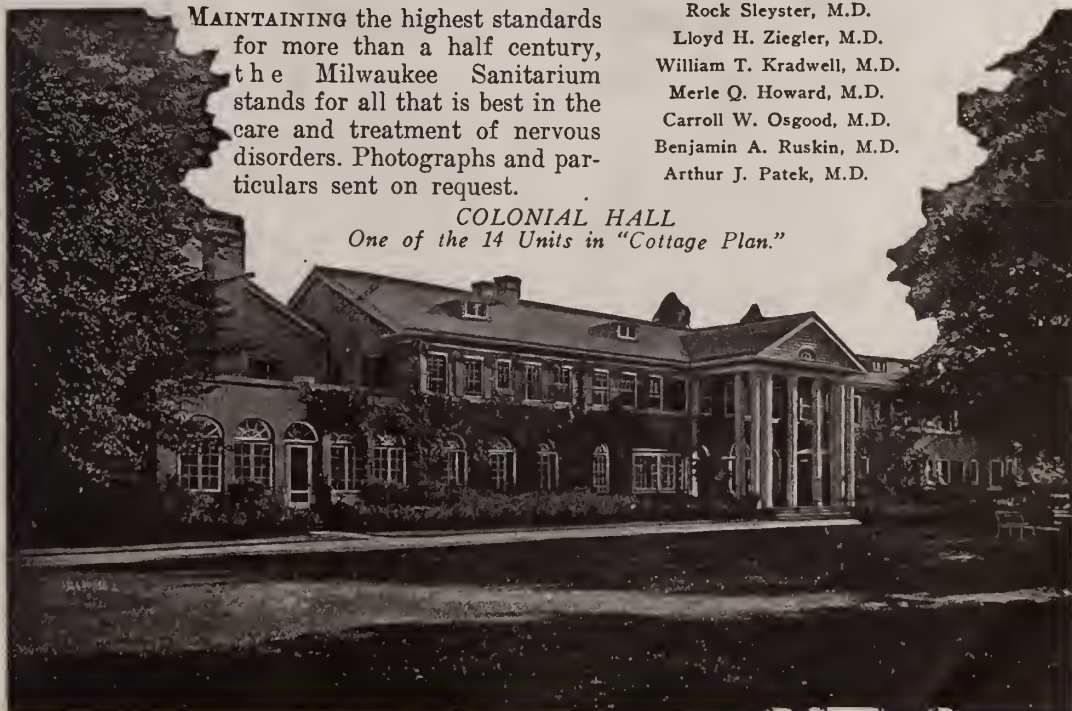
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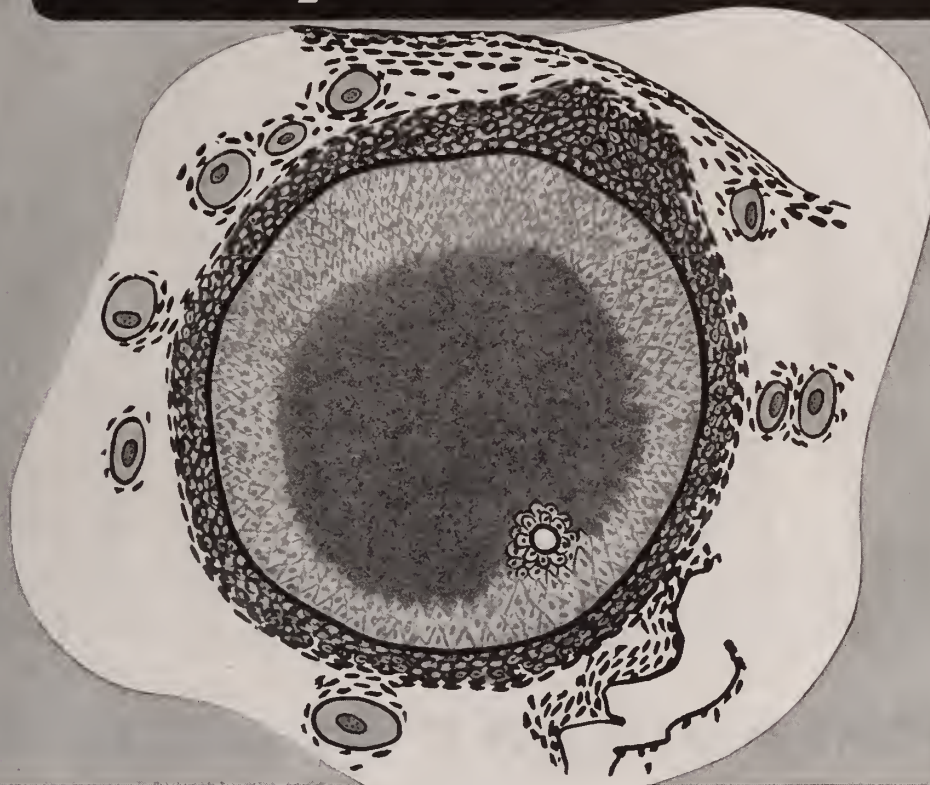
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Petrolagar* . . .

As a Bland Cleansing Enema

- The effect of a Petrolagar cleansing enema is to soften thoroughly the inspissated stool, and help establish a complete, comfortable bowel movement. Petrolagar serves this purpose well because it is miscible with water, a virtue that enables an even dissemination of minute oil globules throughout the residue in the colon.

The Petrolagar cleansing enema is preferable to irritating soap solutions in either the home or the hospital, because of its gentle, but thorough softening action.

Consider the routine use of the Petrolagar cleansing enema in the hospital, postoperatively or in obstetrical cases, where normal bowel habits are temporarily disturbed.

How to USE: Mix 3 ounces of Petrolagar Plain with water sufficient to make one pint to one quart, as desired, and administer by gravity. For retention enema administer at body temperature.



*Petrolagar—The trademark of Petrolagar Laboratories, Inc., brand emulsion of mineral oil . . . Liquid petrolatum 65 c.c. emulsified with 0.4 gm. agar in a menstruum to make 100 cc.

***THESE NAMES, THESE YEARS . . .
HAVE HELPED MAKE MODERN MEDICAL HISTORY***

1938 Butt, Snell, and Osterberg, also independently Warner, Brinkhous, and Smith, report effective use of vitamin K in abnormal bleeding of obstructive jaundice.

Smith, Ungnade, and Prichard; Bergel, Jacob, Todd, and Work; Karrer, Fritzsche, Ringier and Salomon — almost simultaneously announce the synthesis of vitamin E.

Parke, Davis & Company introduces Dilantin Sodium for the treatment of epilepsy.

1866 1941
SEVENTY-FIVE
YEARS OF SERVICE
TO MEDICINE
AND PHARMACY

One of a series of advertisements commemorating three-quarters of a century of progress and achievement

Parke, Davis & Company

PIONEERS IN RESEARCH
ON MEDICINAL PRODUCTS



Q. I always use the syrup in which canned fruit comes. But has it any food value?

A. I am glad to learn you use it because it has excellent food values. It contains sugar and other carbohydrates as well as valuable food components, such as vitamins and minerals. ⁽¹⁾

American Can Company, 230 Park Avenue, New York, N. Y.

- ⁽¹⁾
 1925. J. Home Econ. 17, 377.
 1930. J. Home Econ. 25, 588.
 1938. Commercial Fruit and Vegetable Products, Second Edition,
 W. V. Cruess, McGraw-Hill, New York.
 1940. J. Hygiene 40, 699.



The Seal of Acceptance denotes that the nutritional statements in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

How to Use S-M-A Powder

EACH PACKAGE OF S-M-A* CONTAINS ONE MEASURING CUP



1 Empty one tightly packed measuring cup of S-M-A powder into bottle.



2 Add enough warm previously boiled water to make one ounce.

3 Cap bottle and shake powder into solution. Feed at body temperature.



4 Easy, isn't it?



S-M-A READY TO FEED PROVIDES:

• 20 calories to the ounce, but more important, the nutritional value of S-M-A is that of a complete well-balanced food. When prepared as above, each quart provides:

10 mg. Iron and Ammonium Citrate
200 I. U. of vitamin B₁
400 I. U. of vitamin D
7500 I. U. of vitamin A

NORMAL INFANTS RELISH S-M-A—DIGEST IT EASILY AND THRIVE ON IT

*S-M-A, a trade mark of S-M-A Corporation, for its brand of food especially prepared for infant feeding—derived from tuberculin-tested cow's milk, the fat of which is replaced by animal and vegetable fats, including biologically tested cod liver oil; with the addi-



tion of milk sugar and potassium chloride; altogether forming an antirachitic food. When diluted according to directions, it is essentially similar to human milk in percentages of protein, fat, carbohydrate and ash, in chemical constants of the fat and physical properties.

S. M. A. CORPORATION • 8100 McCORMICK BOULEVARD • CHICAGO, ILLINOIS

INDIVIDUALIZED FORMULAS FOR THE NEWBORN

NORMAL INFANTS

Whole milk 10 ozs.
Water, boiled 10 ozs.
Karo syrup 2 tbs.

Evaporated milk 6 ozs.
Water, boiled 12 ozs.
Karo syrup 2 tbs.

Powdered milk 5 tbs.
Water, boiled 20 ozs.
Karo syrup 2 tbs.

ALLERGIC INFANTS

Evaporated goat's milk... 6 ozs.
Water, boiled 12 ozs.
Karo syrup 2 tbs.

Hypoallergic milk 10 ozs.
Water, boiled 10 ozs.
Karo syrup 2 tbs.

Sobee 8 tbs.
Water, boiled 18 ozs.
Karo syrup 2 tbs.

NEUROPATHIC INFANTS

Evaporated milk 7 ozs.
Water, boiled 13 ozs.
Barley flour 3 tbs.
Karo syrup 1 tbs.
(cooked ten minutes
until thick)

Whole milk 12 ozs.
Water, boiled 6 ozs.
25% Lactic acid 2 tsp.
Karo syrup 2 tbs.

2% Lactic-acid milk 18 ozs.
Karo syrup 2 tbs.

*"Infants Thrive
on Karo Formulas"*



Newborns tolerate a simple formula consisting of 10 ounces of boiled fresh cow's milk, 8 ounces of sterile water and 1 ounce of mixed sugar. Added carbohydrate in the form of corn syrup is usually better tolerated than the simple sugars, lactose or sucrose. At first, about one ounce of the formula will be taken at a time although the infant is allowed all he will take of the three ounces and the remainder discarded. The allergic newborn may be given evaporated cow's-milk or goat's-milk formulas; the hypertonic newborn thick feeding; the hypotonic newborn, evaporated or lactic-acid milk formulas."

KUGELMASS: "Newer Nutrition in Pediatric Practice."

THE CHEMICAL COMPOSITION OF KARO IN GLASS AND IN TINS IS IDENTICAL

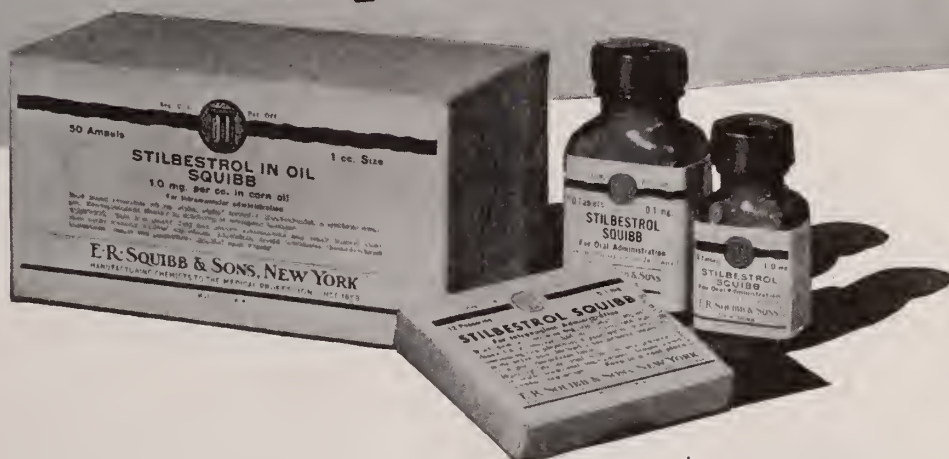
Dextrins.....	37.4%	1 oz. volume....	40 grams
Maltose.....	18%		120 cal.
Dextrose.....	12%	1 oz. wt.....	28 grams
Sucrose.....	4%		90 cal.
Invert Sugar.....	3%	1 teaspoon.....	20 cal.
Minerals.....	0.6%	1 tablespoon....	60 cal.
Moisture.....	25%		

(Karo—Blue Label)

CORN PRODUCTS SALES COMPANY

17 Battery Place, New York City

NOW AVAILABLE STILBESTROL SQUIBB



STILBESTROL was described and named in 1938 by Dodds, Golberg, Lawson and Robinson¹ who reported that it was "by far the most potent" of the many synthetic estrogens investigated. Since that time the product has undergone extensive clinical trial and more than one hundred papers have been published reporting its uses and advantages. Stilbestrol Squibb was used in a large number of these studies.

Stilbestrol Squibb (alpha, alpha'-diethyl-4, 4'-stilbenediol) is a synthetic estrogen for replacement therapy in deficiency of the estrogenic hormone. In contrast to the natural estrogens it is only slightly less effective orally than intramuscularly. Stilbestrol is also much more economical to use

and therefore its field of usefulness is greatly enlarged.

The use of Stilbestrol has been established in alleviating vasomotor symptoms of the menopause (both natural and surgical); gonorrheal vaginitis in children; senile vaginitis and kraurosis vulvae and pruritis vulvae of the menopause. It may be administered orally, hypodermically, or intravaginally. Dosage and route of administration vary with the condition being treated and with the individual patient. In common with other highly potent chemotherapeutic agents, Stilbestrol should be used with caution and only under the immediate supervision of the physician.

¹Dodds, E. C.; Golberg, L.; Lawson, W.; and Robinson, R.: *Nature* 141:247, 1938.

How Supplied: Stilbestrol Squibb is supplied in three forms:

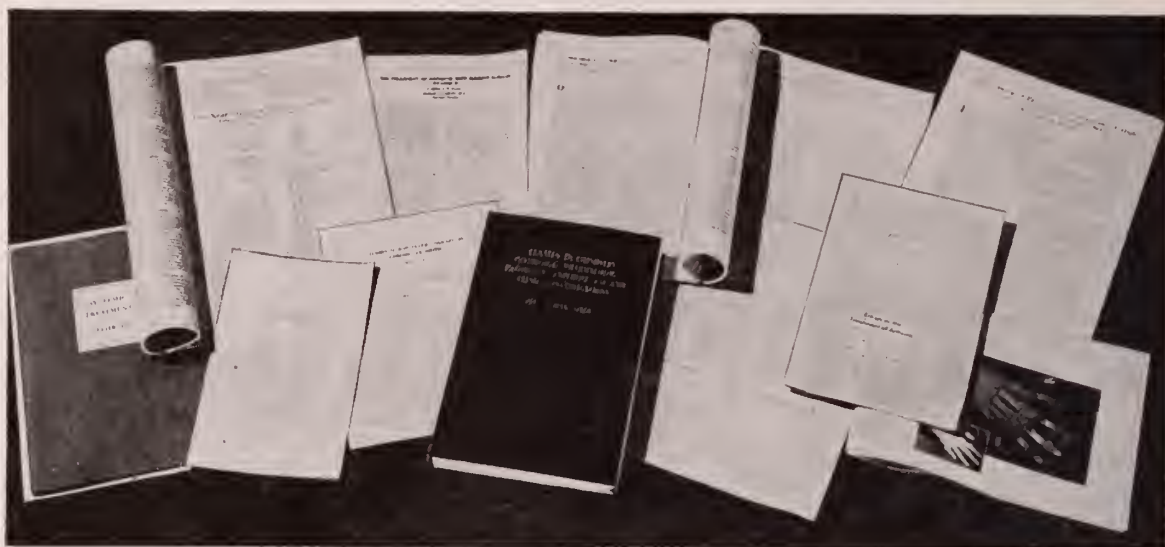
COMPRESSED TABLETS, either uncoated or enteric-coated (*for oral administration*) containing 0.1 mg., 0.5 mg., 1.0 mg., 5.0 mg. in bottles of 25, 100 and 250.

AMPULS (*for intramuscular injection*) in 1-cc. ampuls containing 0.2 mg., 0.5 mg., 1.0 mg. and 5.0 mg. per 1 cc. respectively, in boxes of 6, 25 and 50.

PESSARIES (*for vaginal medication*) in two sizes. 0.1 mg. for children and 0.5 mg. for adults, both in boxes of 12 and 50.

For literature write Professional Service Dept., 745 Fifth Ave., New York

E·R·SQUIBB & SONS, NEW YORK
MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858.



THERE IS NO SUBSTITUTE FOR ERTRON

Reg. U. S. Pat. Off.

Only with this product can you Ertronize your patients in the treatment of arthritis.

All the clinical publications which have led to the extensive and successful use of this form of therapy in arthritis have referred to high potency, activated, vaporized sterol (Whittier Process). Ertron is the only product which meets these requirements. It is effective and non-toxic.

The brilliant clinical record* of Ertron extends over a period of six years. During this time thousands of patients in private practice, in addition to the hundreds of cases that have been reported in the literature, have benefited from Ertron.

*Bibliography on request

Ertron is available in bottles of 50 and 100 capsules.

Products of Nutrition Research Laboratories are promoted only through the medical profession.



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4210 PETERSON AVENUE • CHICAGO, ILLINOIS

MENFORMON DOSULES

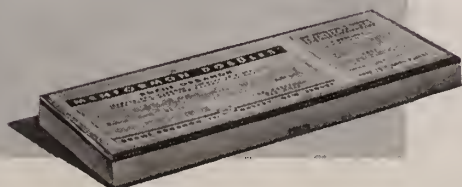


**CUTANEOUS
APPLICATION
OF ESTROGENS
FOR OVARIAN
REPLACEMENT
THERAPY**

Adequate pharmacological and clinical data show that the action of cutaneously applied sex hormones (male or female) is superior to that of identical doses administered orally, and compares favorably with that of the same doses given by injection. Menformon Dosules are specially designed to facilitate this type of therapy. Each Dosule (sealed gelatin capsule) contains 1 Gm. of Menformon Ointment. There are two strengths, representing 2000 and 5000 international units, respectively, of a highly purified estrogen (natural female sex hormone). Boxes of 10 and 25 Dosules in each strength. Instruct patients to snip off the tip of the Dosule with a pair of scissors, squeeze out the ointment and spread it on a wide area of skin, then rub in briskly for several minutes. Literature gladly sent on request.

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BEFORE TREATMENT: Severe case of impetigo contagiosa, case of J. C., age 8, no prior treatment except washing with soap and water.

AFTER TREATMENT: Wyeth's Alulation Ammoniated Mercury with Kaolin applied every hour until oozing ceased; then used once a day. (After six days the infection was completely eliminated.)



Wyeth's
REG. U. S. PAT. OFF.
**ALULATION
AMMONIATED MERCURY
WITH KAOLIN
FOR IMPETIGO**

*Cuts healing time in half
Eliminates greasy ointments*

CONTROLLED CLINICAL TESTS* of which the above is typical, have shown that the healing time in impetigo contagiosa is reduced by half when Wyeth's Alulation Ammoniated Mercury with Kaolin is used on the impetigo lesions instead of the frequently employed ammoniated mercury ointment.

NO GREASY OINTMENTS are necessary when Alulation Ammoniated Mercury with Kaolin is used. It contains colloidal kaolin to adsorb and fix the vesicant exudate and thus lessen the tendency of the infection to spread. The ammoniated mercury (5%) exerts a bactericidal effect against the pyogenic organisms involved.

*J. M. Soc. New Jersey, 36, 442 (July) 1939.

Supplied in 3/4-ounce and 3-ounce bottles

JOHN WYETH & BROTHER, INCORPORATED, PHILADELPHIA

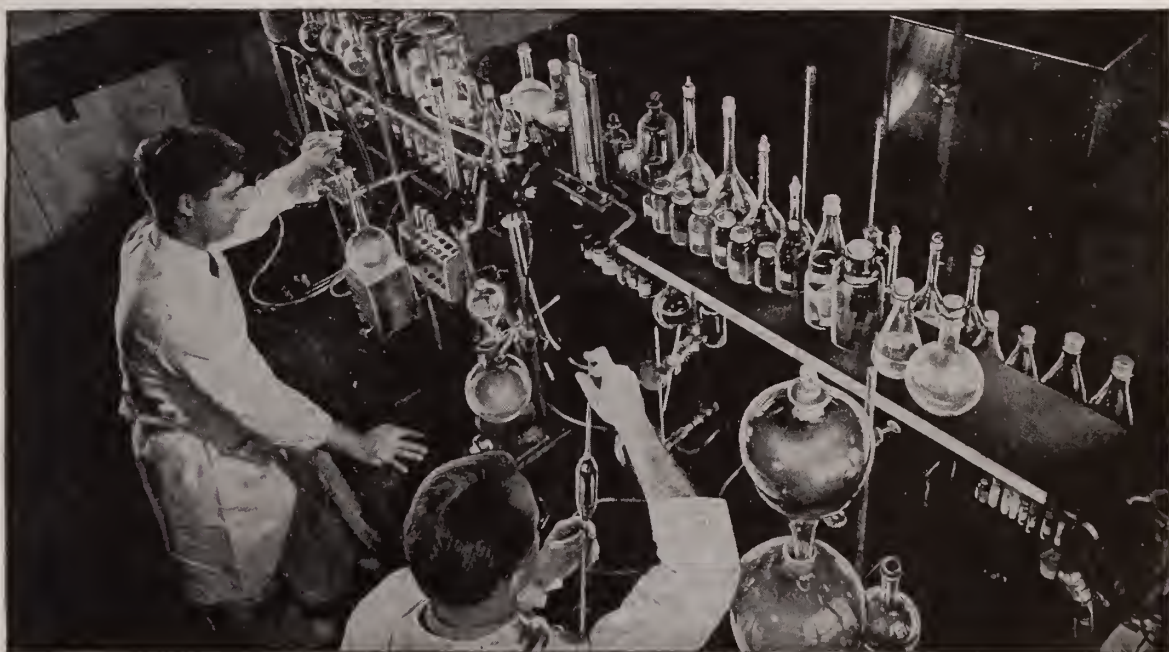
SEEKING NEW FRONTIERS

Within Four Walls



In the chemical research laboratory, a quick eye and expert fingers measure the quantities of solutions in fractions of drops.

The four walls of the laboratory do not a prison make for the vision of the inspired worker in search for new frontiers in medical progress. From his retorts and crucibles issue new ways and hitherto unknown measures for the alleviation of disease and for its prevention. To the earnest search for new and improved medicinal substances the Warner Institute for Therapeutic Research is dedicated. The results of its exploration in the field of purely scientific research are presented in the reports published from time to time. To make available its discoveries in therapeutic products to the physician and pharmacist, is the privilege of William R. Warner & Co., Inc., a world-wide organization, with laboratories and agencies in 75 countries.



113 West 18th Street, New York, N. Y.

• 404 South 4th Street, St. Louis, Mo.

WILLIAM R. WARNER & CO., INC.



THE THIN MAN.

The undernourished, underweight individual, whether man, woman or child, requires special dietetic attention. COCOMALT, three times daily in milk, when extra calories and additional food essentials are needed, is often recommended by the profession. As a between-meal feeding, it has also proven of value.

Recent studies¹ show that in groups of both children and aged the addition of COCOMALT to the diet in regular amounts resulted in substantial weight gains and improved blood picture. Further mentions are made by medical commentators² with inclusion of COCOMALT in successful diet lists for thin patients.

The vitamin-mineral character of this malted food drink supplies important nutrients in diets for all ages. COCOMALT also provides a drink whose taste appeal acts as an incentive to drink more milk.

Cocomalt

... for both normal and therapeutic diets ... contains calcium, phosphorus, iron ... Vitamins A, B₁, D ... Quick energy and body building nutrients.



C O C O M A L T
Enriched Food Drink for All Ages

R. B. DAVIS COMPANY • Hoboken, N. J.

¹ Arch. of Ped.—56:Nov. 1939
Medical Rec.—Aug. 21, 1940

² Medical Rec.—150:1:1939:
Arch. of Ped.—57:488 (July) 1940

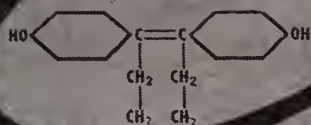
NEW ESTROGENIC SUBSTANCE EFFECTIVE ORALLY

Stilbestrol

WINTHROP

(DIETHYLSTILBESTROL*)

CRYSTALLINE SYNTHETIC ESTROGEN



α : α' -diethyl-
4:4'-stilbenediol

(4:4'-dihydroxy- α : β -diethyl-
stilbene)

Economical

HOW SUPPLIED

Tablets, 0.1 mg., 0.5 mg. and 1 mg., in bottles of 50, 250 and 1000.

Suppositories, 0.1 mg. and 0.5 mg., in boxes of 5 suppositories.

Ampules (Stilbestrol in Oil), 0.5 mg. in 1 cc., and 1 mg. in 1 cc., each in boxes of 5 and 25 ampules.

The new synthetic estrogen, Stilbestrol, now made generally available for the first time, has proved effective when given by mouth as well as by injection. A long awaited advancement is thus realized in an important field of hormone therapy. Moreover, Stilbestrol is much more economical to use than synthetic natural estrogens or extracts from animal sources.

INDICATIONS: Stilbestrol is indicated wherever an estrogenic effect is desired. It has been found of particular value in relieving the symptoms of the menopause, in senile vaginitis, and in gonorrheal vaginitis in children. It will relieve or prevent painful engorgement of the breasts during suppression of lactation.

Doctor: Watch your mail for Winthrop's booklet giving the essential details regarding this new therapeutic agent: Chemical and pharmacologic data, review of clinical reports, discussion of contraindications, side effects, methods of administration and dosage table.

*The Council on Pharmacy and Chemistry of the American Medical Association has recently adopted the name "Diethylstilbestrol" as the common nonproprietary designation.

WINTHROP CHEMICAL COMPANY, INC.

Pharmaceuticals of merit for the physician

NEW YORK, N. Y.

WINDSOR, ONT.



HOW TO DRINK KNOX GELATINE FOR SUPPLEMENTARY PROTEIN

In cases where you want to supplement your patients' protein, Knox Gelatine (U.S.P.) may be of help. It can be taken very easily in concentrated drink form. 2 to 4 envelopes a day (or more, depending on the patient's needs) may be prescribed. Here is the way to drink Knox:



1. Pour 1 envelope of plain, unflavored Knox Gelatine into a glass $\frac{3}{4}$ filled with water or fruit juice, not iced.



2. Let the liquid absorb the Gelatine. Then stir briskly.

Be sure the patient does not confuse Knox Gelatine with ready-flavored gelatine dessert powders. They are about 85% sugar, 3% flavor, acid, and coloring, and only 10% to 12% gelatine. Knox Gelatine (U.S.P.) is all protein. Among its 15 amino acids are 7 of the 10 considered "essential." It is manufactured under rigid bacteriological control to maintain purity and quality. It contains no sugar!

One package (1 oz.) of Knox Gelatine contains as much protein as 4.2 eggs, or 1.7 pts. milk, or 9.1 oz. wheat cereal.

Your hospital will procure Knox for your patients if you specify it by name.



3. Drink immediately. If the gelatine thickens, stir again. Knox is tasteless, odorless.

The above method is also followed in Peptic Ulcer conditions.

KNOX GELATINE

(U. S. P.)

A SUPPLEMENTARY PROTEIN CONCENTRATE

Send This Coupon for Useful Dietary Booklets



- ☐ The Diabetic Diet ☐ Peptic Ulcer ☐ Infant Feeding
☐ The Protein Value of Plain, Unflavored Gelatine ☐ Reducing Diets and Recipes

KNOX GELATINE, Johnstown, N. Y., Dept. 483

Please send me FREE booklets for the medical profession as checked.

Name

Address

WATER-BALANCE BREAKS THE VICIOUS CIRCLE



WHEN the feces in constipation become dried out, concentrated, and too small in bulk to act as a proper stimulus to defecation—what is the remedy?

Surely not purgatives, which may “defeat the ultimate object for which they are given, that is, a permanent cure.” (Morgan)

Rather does corrective therapy lie in the use of the hydrophilic (water-carrying) hemicellulose

MUCILOSE

By bringing “bound water” to the dehydrated stool, Mucilose aids in restoring normal consistency, normal bulk, normal peristalsis.

FREDERICK STEARNS & COMPANY, Detroit, Michigan

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Please send me a clinical supply of Mucilose.

Name M.D.

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*Maintain Normal
Hemoglobin Levels*

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**HEMATINIC
PLASTULES***



● Hematinic Plastules provide ferrous iron in small soluble elastic capsules—a modern, convenient dosage form. Where iron therapy is indicated, Hematinic Plastules can usually be relied upon to bring about a steady, rapid rise in hemoglobin. Their administration is seldom complicated by gastric disturbance.

Hematinic Plastules are an economical iron preparation especially effective for the treatment of the iron deficiency anemia of pregnancy, for chronic blood loss, or post-infection anemia.

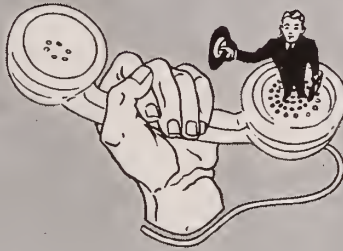
Hematinic Plastules are available in two types, Plain or with Liver Concentrate, in bottles of 50 and 100.

*REG. U. S. PAT. OFF.

THE BOVINE COMPANY

8134 MCCORMICK BOULEVARD • CHICAGO, ILLINOIS

He's as Easy to Reach as Your Telephone



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He's G-E's direct representative who regularly makes the rounds of physicians and hospitals in your locality, and responds to their emergency calls for expert technical service or advice on the operation and maintenance of x-ray and other electro-medical devices.

He is neither an agent or distributor for G-E apparatus, but is a permanent employee on G. E.'s payroll, and works under the jurisdiction of a nearby G-E Branch.

What does this mean to users of G-E equipment? Just this: That a specially trained field organization, directly responsible to headquarters, is carrying out company policies established in the interest of customers, and rendering a caliber of maintenance service essential to the consistently satisfactory performance of electro-medical apparatus.

Twenty years of direct G-E representation have conclusively proved that this plan operates to the distinct advantage of all concerned, and will fully justify every dollar that you, too, might invest in G-E equipment.

The G. E. men who are serving these mutual interests in your locality are listed herewith. We sincerely believe that you will find them a reliable source of helpful suggestions.

**GENERAL  ELECTRIC
X-RAY CORPORATION**

“Bricks, travertine marble, and apparatus cannot solve problems or make discoveries but may be tremendously useful at the command of knowledge and skill.”

VITAMINS FOR CHILDREN



‘Homicebrin’ (Homogenized Vitamins A, B₁, B₂, C, and D, Lilly) is a remarkable multiple vitamin preparation designed especially for pediatric practice. The water-soluble and fat-soluble vitamin substances in ‘Homicebrin’ are finely divided and suspended in a base which permits mixture with milk formulas, water, fruit juices, or food.

Daily administration of small amounts will prevent development of deficiencies due to lack of vitamins A, B₁, B₂, C, and D.

ELI LILLY AND COMPANY

Principal Offices and Laboratories, Indianapolis, Indiana, U. S. A.

The Illinois Medical Journal

October 1941

VOL. 80, NO. 4

Official Journal of the Illinois State Medical Society

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Editorials

AID TO DEPENDENT CHILDREN

During the last session of the Illinois Legislature, bills permitting the state to participate in the Social Security program of aid to dependent children were approved. Governor Green signed the bills so that they became effective on July 1st. Awards will be paid after October 1, 1941. Sixteen million dollars were appropriated for the biennium, 1941-1943, one half of which will be paid by the state and one half by the Federal Government in accordance with the Social Security Act.

The law will be administered by the State Department of Public Welfare through the County Departments of Public Welfare, which have been set up previously in each county of the state. Within the Department of Public Welfare the former Division of Old Age Assistance was changed to the Division of Public Assistance. It has been estimated that there are at least 70,000 needy children in Illinois who will receive benefits under this Act.

Approximately 17,000 children have received aid under the Mother's Pension Law, and 53,000 have been cared for through public funds, the total cost to the state under the new law will be approximately the same, while an additional four million dollars a year will be allotted by the Federal Government.

We are indebted to the Welfare Bulletin for the following information:

PROVISIONS OF THE LAW

The law provides that:

"A dependent child as the term is used in the Act means a needy child under the age of

16, or under the age of 18 if in regular attendance at school, who has been deprived of parental support or care by reason of the death, continued absence from the home, or physical or mental incapacity of the parent and who is living with his father, mother, grandfather, grandmother, brother, sister, stepfather, stepmother, stepbrother, stepsister, uncle, or aunt, in a place of residence maintained by one or more of such relatives in his or their own home.

"The child, to be eligible for aid must have resided in the state for one year immediately preceding the application for such aid; or have been born within the state within one year immediately preceding the application, and his mother must have resided in the state one year immediately before the birth of the child.

"Application for aid for a dependent child shall be made by the parent or relative with whom the child resides. The County Department of Public Welfare shall make an investigation and examination of the circumstances of the child, taking into consideration the suitability of the home in relation to the standards of care and health fixed by the laws of the state and by the rules and regulations of the Department of Public Welfare, including the social and educational opportunities of the child and the fostering and protection of its particular religious faith.

"The aid granted for a dependent child shall be determined in accordance with the rules and regulations of the Department of Public Welfare, taking into consideration the child's re-

quirements and the condition existing in the case, the income and resources available to him, from whatever source, and shall grant such aid to the child as shall be sufficient when added to the income and resources available to him, to provide him with a reasonable subsistence compatible with health and well-being.

"Names of persons receiving or applying for assistance and records concerning them shall be absolutely confidential except for purposes directly connected with the administration of the Act and shall not be divulged either directly or indirectly for any other purposes. No public official, agent, or representative in carrying out any of the provisions of the Act, shall take charge of any child over the objection of either the parent of the child or the person standing in the position of parent to the child, except by Court order."

The Mother's Pension law is repealed although the repeal does not take effect until July 1, 1942.

Under the Aid to Dependent Children program monthly payments will continue to be based on need, but the maximum will be the same over the entire state. The Federal Govern-

ment will pay to the state an amount equal to one half of the total expenditure of the State up to \$18.00 per month for one dependent child, and \$12.00 per month for each of the other dependent children in the same home.

Under the Mother's Pension program payments have been subject to local tax levies and in some counties the taxable property has such a low assessment value that, even though the maximum levy for Mother's Pension is made, the amount subject to collection is inadequate to pay the county's share of the Mother's Pension costs. Under the A.D.C. program all counties will share equally, all must participate and there shall be uniform grants regardless of the amount of taxable property thus giving children in poorer counties equal advantages with those in more prosperous areas.

Physicians will have certain responsibilities in connection with the aid to Dependent Children program, as provisions should be made to give adequate medical care to these recipients. In the consideration of dependency, frequently examinations of the parents must be made before the decision can be reached.

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The Illinois State Medical Society has an Advisory Committee on Medical Care for Public Assistance Recipients which has met with officials of the State Division over a period of eight months, in an effort to develop a program which will be mutually satisfactory. County Medical Societies likewise, have named a similar committee to confer with the county Welfare Departments and assist them in caring for the many medical problems which will arise as a result of the operation of this program.

The State Division of Public Assistance and County Departments of Public Welfare likewise are responsible for the operation of the Old Age Assistance program, and a program for medical care for these recipients has also been developed through these repeated conferences. The program has been submitted to the county society committees, and arrangements have been made to conduct informative meetings in each Council District in Illinois, so that the local committee personnel will become more familiar with the provisions of the program, and likewise will know more about the duties they are expected to perform.

It is the opinion of the Council of the State Medical Society as well as of the Council Committee on Medical Care for Public Assistance Recipients that the program recommended for Old Age Assistance Recipients should be used likewise in the program of Aid to Dependent Children, and perhaps to the other public assistance groups to be considered later.

It is generally recognized in considering these programs that medicine is dealing with people of very low income, and that this fact should receive paramount consideration in the development of the programs for medical care.

MEDICAL COOPERATION IN THE DEFENSE PROGRAM

The medical profession throughout the country is cooperating in every way possible with the government in the vast program for National Defense. During the period from 1775 to the present time physicians have invariably responded to all calls from the government for service. Physicians have had an important role in all wars in which our country has participated.

We have been informed by historians that at the Battle of Bunker Hill in 1775, there were

36 physicians on duty and one of the most prominent colonial physicians, General Joseph Warren, was killed during this encounter. Another prominent physician during the Revolutionary War, Hugh Mercer, became a General. It is generally known that the first signer of the Declaration of Independence was Josiah Bartlett, physician and war surgeon.

Illinois physicians are cooperating in the present program in many ways. Hundreds have left their practice and families and are in army or naval service. We have in Illinois, at the present time, 360 local draft boards, and 40 medical advisory boards, and there are physicians devoting a considerable part of their time in making the necessary examination of selectees for each of these types of boards.

A recent check up gives the following information:

The total number of physicians in Illinois who have qualified as examiners for local boards, is 1705 and there are 557 appointed dentists.

For the 40 Medical Advisory Boards in Illinois, there are 526 physicians and 94 dentists who have qualified up to September 1, 1941.

In addition to these appointments, there is one physician on each of the Appeal Boards, the third type of Boards in the Selective Service set up within the several states.

This makes a total of approximately 2245 physicians and 620 dentists who are acting in some capacity in Illinois, for the examination and classification of men called before the local, medical advisory and appeal boards.

Surveys have been made to determine the needs for medical care of the civilian population as well as workers in essential industries, so that both groups will receive adequate medical care in the present emergency.

Another important matter which will require a considerable amount of attention is the return to normalcy following the demobilization period which everyone hopes will be forthcoming within a reasonable period of time.

Medicine once more has received a definite responsibility in this unusual emergency, and every effort has been made to give the best possible service to the Government, as has been the case in all previous emergencies since the birth of this Nation.

Correspondence

BRITISH PLASTIC SURGEON TO ADDRESS CHICAGO MEETING OF SPECIALISTS

Sir Harold Delf Gillies, one of Great Britain's leading plastic surgeons, who is now in charge of special units for the repair of facial injuries in the London area, is to be a guest of the American Academy of Ophthalmology and Otolaryngology, national organization of eye, ear, nose and throat specialists, when it meets in Chicago at the Palmer House, October 19-23.

Sir Harold will address a special defense program presented by the Academy on Monday evening October 20. The other speakers will be Dr. Irvin Abell, Louisville, Ky., a former president of the American Medical Association and now chairman of the association's committee on medical preparedness as well as chairman of the health and medical committee of the Federal Security Agency; Col. Louis H. Bauer, Hempstead, N. Y., an authority on aviation medicine and now a member of the New York state medical society's committee on medical preparedness, and Dr. Burt R. Shurly, Detroit, a former president of the academy and chairman of its special committee on national defense. Dr. Samuel J. Kopetzky, chief of the medical division of the selective service system in New York City, will be the narrator for a series of motion pictures on the medical services of the Army and Navy.

Sir Harold, a native of New Zealand, is plastic surgeon to the great St. Bartholomew's Hospital in London and has been on the staffs of other hospitals at various times. At present he is consultant adviser to the ministry of health and is in charge of the three plastic surgery units in London. It was recently reported to the American Medical Association that Sir Harold's house had been bombed and that his eldest son was

taken prisoner following a forced landing of his plane.

Sir Harold is an honorary member of the American College of Surgeons and of the American Dental Association. In 1935 he delivered the Mayo Lecture at Northwestern University Medical School, Chicago.

ANNOUNCEMENT OF VAN METER PRIZE AWARD

The American Association for the Study of Goiter again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meeting of the Association which will be held at Atlanta, Georgia, June 1st, 2nd, and 3rd, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten, double spaced copy sent to the Corresponding Secretary, Dr. T. C. Davison, 478 Peachtree Street, Atlanta, Georgia, not later than April 1st.

The Committee, who will review the manuscripts, is composed of men well qualified to judge the merits of the competing essays. Dr. Asher Chapman of Rochester, Minnesota, received the Award for the year 1941 in recognition of his essay entitled "The Relationship of the Thyroid and the Pituitary Glands to Iodine Metabolism and Extrathyroid Iodine Metabolism."

A place will be reserved on the program of the annual meeting for presentation of the Prize Award Essay by the author if it is possible for

him to attend. The essay will be published in the annual Proceedings of the Association. This will not prevent its further publication, however, in any journal selected by the author.

SIMPLIFIED PRACTICE RECOMMENDATION R106-41, HOSPITAL PLUMBING FIXTURES, NOW IN PRINT

Printed copies of Simplified Practice Recommendation R106-41, Hospital Plumbing Fixtures, are now available, according to an announcement of the Division of Simplified Practice, National Bureau of Standards.

In May, 1929, a general conference of hospital administrators, representatives of plumbing fixture manufacturers, and others concerned, approved a simplified schedule of standard stock plumbing fixtures for hospitals.

The Standing Committee in charge of this recommendation drafted a proposed revision in 1939, which was referred to the manufacturers joint committee on standards and specifications for further study. At a meeting of this committee in May, 1940, a final revision was drafted and approved. This proposed revision was then approved by the industry for promulgation by the U. S. Department of Commerce, effective from July 1, 1941. In addition to the list of standard fixtures, the recommendation also includes reference to grading rules, nomenclature, tolerances, methods of test, installation, etc.

Copies of R106-41 may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents each. A discount of 25 percent on orders for 100 or more copies is available to those desiring a supply of this publication for business purposes.

Roland R. Cross, M.D., Director Illinois State Department of Public Health recently released the following information.

TWO TYPES OF BIRTH VERIFICATION FORMS

With the adoption of the new amendment to the Vital Statistics Act in Illinois there are now two different types of birth verification forms available according to State law. Called a "certification of birth registration," the new abbreviated form *attests* to the fact that the birth in question has been duly recorded, and *establishes* the name, sex, date, and place of birth of

the person to whom it relates. This information provides adequate legal proof of age and of citizenship, without revealing detailed personal data as to parentage, legitimacy, etc.

The older type of form is a certified copy of the original certificate of birth, and has been in use since 1916. This contains all the information given in the short new form plus a number of personal items not usually of interest to the agencies and organizations which demand to see birth verifications.

Either type of form is available for the statutory fee of fifty cents. If the birth was reported before 1916 the facts (on either form) should be available from the clerk of the county in which the birth occurred. Verifications of Illinois births registered since 1916 may be obtained from the local registrar, the county clerk, or the Illinois Department of Public Health.

TO LECTURE ON PSYCHOLOGICAL EFFECTS OF WARFARE

One of England's foremost specialists in psychiatry and neurology has been granted a leave of absence from the RAF by the British government to report to the American medical profession his first-hand observations on the psychological effects of "blitz" warfare on armed forces and civilian population.

Dr. R. D. Gillespie, who is now chief psychiatrist for the British Royal Air Force, is coming to this country at the request of the Salmon Committee on Psychiatry and Mental Hygiene of the New York Academy of Medicine. He will deliver the Salmon Memorial Lecture in the New York Academy building Nov. 17, 18 and 19, speaking on "Psychoneuroses from the Standpoint of War Experience."

The New York lectures will be followed by addresses before the Chicago Neurological Society, the Chicago Institute of Medicine and the Illinois Psychiatric Society in Chicago. Dates for these lectures as well as lectures in Toronto, Ontario and San Francisco, California, will be announced later.

Dr. Gillespie's observations made under actual war conditions are expected to be of inestimable value to American psychiatrists in formulating plans for maintaining civilian morale in wartime. His lectures will also give his hearers new information concerning the pressing psychiatric problem of today — the psychoneuroses.

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OUR AGING POPULATION

In the early days of this country there was a large proportion of children and young adults, with a correspondingly small proportion of older persons. It will not be long now, trends being what they are, when this state of affairs will be reversed.

Three factors are operating to produce the latter result — declining birth rate, curtailed immigration, and improved mortality in childhood and early adult life.

Dublin foresees some interesting (and disquieting) consequences. While normally conservative and tending to uphold sound political and social institutions, the elderly may be manipulated unscrupulously and demand grants ruinous economically and financially, including the gratification of special medical desires and needs. New types of hospitals for mental and physical ailments, particularly in southern areas, with a vast army of government-employed physicians, will be some of the effects of medicine.

Small apartments will be the rule. Per capita food consumption will tend to decline — a blow to agriculture. The payment of old age benefits under social security will be alarmingly accelerated.

Future federal budgets will have to take the aging population constantly into account, along with new pensions for war service.

The new pattern of life will call for statesmanship of a high order, if disaster is to be averted and advantage taken of whatever is promising in the new order of things.

But the conclusion can not be escaped that we are imposing upon our children an obligation to care for a huge proportion of old people, along with the debts now being incurred for other reasons.

The race suicide fanatics may yet face a fearful reckoning. Dublin looks for a minimum of about 13 births per thousand of population by 1980. He so reads the "wave of the future."—*Medical Times*.

THIS TRIFLE, WAR

Whatever its drawbacks, total war is not open to the same eugenic objections as the old-fashioned kind. It has been said of wars in the past that they destroy the cream of the young manhood of a generation; and that the best germ-plasm is thus irrevocably lost, to the lasting detriment of the race. To see men in terms of germ-plasm savours, perhaps, of the biologist's fancy that the hen is merely a device for producing more eggs; but the argument is disturbing for all that. To know that this dysgenic effect is reduced, because the risk is more evenly distributed, is a minor consolation of this war. Raymond Pearl, however, held that no war had so far occurred in the nineteenth or twentieth century which had had any measurable genetic effect on the nations involved. This seems incredible until his figures are studied. He pointed out that wars, nowadays, last only a short time in comparison with the span of human life; and more fighters return than are killed. They return in the prime of life, capable even if maimed of founding healthy families; and most of them do. In the last war those killed formed a startlingly small fraction of the total population. He estimated that the loss to the American race was only 0.055% of the 1910 population, or 0.048% of the 1920 population, and thought it unlikely that any geneticist would regard five one-hundredths of 1% as a significant loss from the total gene pool of the population. The comparable figure for France was, of course, much higher, lying, he calculated, somewhere between 1.4 and 3.4% of the population; yet even so it could have had no measurable effect on the quality of the French race. These figures are worth remembering at the present time, when pressure of war spoils the sense of proportion. Nor is it merely on genetic grounds that they are cheering; they remind that, at worst, wars are minor interruptions of our evolution and that we have a good chance of growing out of them.—*The Lancet*, June 7, 1941.

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

Reading, today, the current literature on our political, social economics, labor management, production, agriculture and distribution problems along with the problems of taxes, and the function of government one arrives at a state of confusion. Perhaps this confusion is the result of distortion of facts, lack of facts and failure to present in a logical way the pros and cons of their arguments. Attempting to find myself and to clear up part of my confusion, I read again Adam Smith on "The Wealth of Nations." For better understanding I read it again. Published in 1776 it belongs to the horse and buggy days. It has lived through these years as perhaps the best contribution on political economy. I would suggest that doctors interested in economics read it, and that legislatures, executives, social leaders and labor leaders also read it. There are certain fundamentals that must be preserved if democracy is to survive. We must work, we must be frugal, we must be honest, we must be tolerant, we must accept individual responsibility, we must accept our responsibility to others according to our position and station in life. We must not assume that the function of government is to support us, but rather that our function is to support the government that is essential to society. We have reached the highest point of universal education, in this country, of any country in the world and if education is of value we should need less and less of planned economy and have more and more of individual planning of our own economy. It would seem to me that those responsible for our educational policies should strive for that goal rather than for a planned economy.

Returning to our own subject of medical economics, I sometimes wonder if our conception of this subject is clear. Some doctors think of the subject only as it provides for and protects

their financial gain. Outside of the profession some think of it only as it relates to the public with no consideration of the financial return to the doctor. We cannot have a producer and a consumer at great odds without harm to both. If we have a poor product, we lose our market. If we have a good product the consumer and producer both profit. Competition tends to produce a better product which benefits both producer and consumer. Medical care is a product. The consumer is best served by the best product. Competition and quality usually adjust price levels. Can we increase the consumption of medical care, retain its present high quality and leave a profit to the producer, commensurate with his investment, his hours of labor, his great responsibility, his depreciation of plant equipment, which is essentially himself? As stated in previous articles experiments are being carried on to increase the consumption of medical care at a lower cost to the individual, yet preserving the quality of the service and even improving it.

We hear no great cry for cheaper automobiles. Our demand is for quality and safety. They cost more than a horse and buggy used to. They give us better transportation. Manufacturers who have been able to produce quality cars and improve them every year have survived. Quality transportation, in spite of the original investment, has proven profitable to producer and consumer. Medical care in the automobile and airplane era costs more than the medical care of the horse and buggy era. Quality has improved. The health of the nation is better. The consumer has profited. Medical economics does not look to producer profits as its legitimate goal. It looks to quality production and consumer value in health. While the cost of medical care has increased; we must pause and take notice of the millions of dollars that have been saved and

more important the millions of lives that have been saved by the reduction in infant and maternal mortality and morbidity, by the nearly complete eradication of typhoid fever, malaria, diphtheria, scarlet fever, by the reduction in the mortality in pneumonia by fifty percent, by the constant reduction in tuberculosis and the cure of many cases now that at one time were considered hopeless, by the prevention of deformities resulting from infantile paralysis by the skill and knowledge of orthopedic surgeons. Many other examples could be cited. The medical profession is constantly endeavoring to reduce the incidence of disease. It is a quality product which we hope to maintain for producer and consumer benefit.

Dr. R. K. Packard, Chairman
Medical Economics Committee

NURSING EDUCATION VS. NURSING CARE

From a discussion at the midwinter session of the Council of our Association, it is clear that the problem of nursing care is constantly growing in seriousness and that unless remedial measures are promptly instituted there is danger of a complete breakdown of this indispensable service to the sick. Hospitals throughout the state are threatened with serious handicaps in their nursing care. The problem is particularly acute for smaller institutions in the outlying districts.

The present dilemma may be traced to a number of factors. The public health activities, the Red Cross, the Visiting Nurse Associations, the school health services, all have already absorbed, and are continuing to draw, goodly numbers of graduates. The salaries, the hours, and the nature of service offered by these positions are obviously more attractive than are the duties connected with bedside routine in a home or in a hospital.

The greatest contributing factor, however, must be sought in deeper territory. The history of nursing education in this country runs closely parallel to that of medical education with this exception. A generation ago there were 170 medical colleges in the United States. As to training schools, well, there were almost as many as there were hospitals. In Nebraska too, until the reform began it was unthinkable for a respectable hospital to deprive itself of a nurses' training school. This statement is not made in a spirit of sarcasm. Indeed, many graduates from these now extinct training schools are today rendering excellent bedside care to the people of our commonwealth.

With the change in trends of education in nursing, the smaller schools have disappeared. Now only the large and well endowed hospitals can keep up with the rigid requirements and the academic equipment necessary for an approved training school. The effort

to improve the standards of any profession deserves praise, and as physicians we express our enthusiasm over the attempt. In fact, we have helped in no small measure to expand the curriculum.

"The recently graduated nurse is more interested in an executive or administrative job than in actual nursing." This statement was made in full sincerity by a member of the Council, who for many years has operated a well equipped but small hospital in the state. The sentiment seemed to be general and practically unanimous that the modern R.N. considers herself too well trained to administer "hypos" and enemas.

It is not within the scope of this editorial to suggest a solution to the problem. That the situation is urgent the leaders in nursing education undoubtedly appreciate. It is ardently hoped that our committees appointed to study the dilemma will bring in some tangible information that may promptly be utilized as a basis for betterment of nursing care in Nebraska.—Editorial from *Nebraska State Medical Journal*, March, 1941.

NAVAL MEDICAL CORPS

The Medical Corps of the Navy offers an interesting career. Just as in private life, much depends on the individual. In normal times, a physician who has completed his internship, has graduated from a grade A school and has passed successfully mental, moral and physical examinations is first sent to one of the base hospitals of the Navy or to the medical school in Washington for what is termed "indoctrination." This does not mean strictly professional training. It means that the young physician is taught the various naval forms and procedures, naval etiquette. At first, it all seems rather complicated, but the young physician soon begins to feel that he has arrived. He begins to feel that he has mastered the so-called red tape of the service. It is necessary for officers of the Navy to be well-trained, not only professionally but also from a naval standpoint. Each officer must know the laws and customs of the naval service.

At the completion of his training, the young doctor begins his naval career. Usually he goes to sea or to some tropical station. Many of these are delightful spots. I recently spent more than two years as chief surgeon at the naval hospital in Pearl Harbor, Hawaii, and I must admit that those years were some of the happiest of my life.

After the physician's first cruise or tour in the tropics, which usually lasts approximately two years, he is privileged to choose a course in medicine or surgery in which he is most interested. On completion of this course, he is assigned as assistant to one of the senior officers. Throughout his career, he may request these special courses in order that he may keep abreast of the latest developments.—G. A. Eckert, Commander (MC) USN, in *Staff Meetings of the Mayo Clinic*, April 30, 1941.

Original Articles

THE DIAGNOSIS OF CARCINOMA OF THE ESOPHAGUS

JAMES B. COSTEN, M.D.

AND

WM. T. K. BRYAN, M.D.

ST. LOUIS

Diagnosis of carcinoma of the esophagus is rarely made early in the course of this not too infrequent disease. This disease, as we all know, carries an extremely bad prognosis. The few cases that have been cured, as in cancer elsewhere in the body, had early lesions. Improvement in this situation can be expected only by more intensive search for early cases. Hence, a study has been made of six cases whose findings were pertinent in the differential diagnosis, and of the 106 cases admitted to Barnes Hospital and the Barnard Free Skin & Cancer Hospital during the past decade, in an effort to correlate and emphasize the symptoms which might stimulate interest in an earlier diagnosis of this disease. Enormous numbers of reports fill the literature (Bird); however, the gravity of this problem justifies continued discussion.

Carcinoma of the esophagus is not only fascinating as a study, but an important problem, as it is as yet neither successfully diagnosed in the early stage nor treated with more than rare success. Its early diagnosis will be obtained only at the expense of routine complete examinations of all unexplained cases of dysphagia, pain in the chest, hoarseness, or vomiting. The treatment is necessarily strenuous, whether so-called palliative or curative, by radiation or surgery, so that the typical wasted victim soon succumbs.

Esophageal cancer has a fairly typical course

with the primary symptom unfortunately common to other esophageal diseases, namely, some disturbance with swallowing. In this series of cases from Barnes and Barnard Hospitals 75% gave it as an initial symptom. This is in line with other large series reports. However, there are approximately 60% of all cases of dysphagia who do not have cancer, as shown by Macmillan¹, in his analysis of 1600 cases.

It is not too extravagant to suggest that carcinoma of the esophagus should be borne in mind in any case presenting to the doctor the symptoms of belching with regurgitation, accumulation of excessive saliva, sensation of lump in the throat, with or without mild choking sensations, substernal distress of any kind, or cough without fever, and upper respiratory infection. Hoarseness is purely a laryngeal symptom, but may be due to a recurrent paralysis from aneurysm or compression of an esophageal growth. A case with one or more of these symptoms might have any of the following conditions:

1. Simple hyperacidity of the stomach, the convenient and too easily acceptable blanket to cover a multitude of gastric disturbances.

2. Cardiac lesions, which when simple, respond to reassurance, a sedative and a rest period; when serious recognizable by the ordinary means of cardiac diagnosis.

3. Esophagitis, a condition occurring far more commonly than ever suspected; is characterized by substernal burning pain increased by swallowing solid food, occasional clearing of blood from the throat, and here again dysphagia; it is difficult to differentiate from lesions of the stomach, gall-bladder and intestines, and can be diagnosed only with certainty with the esophagoscope; it has its origin in vomiting, trauma from the passing of tubes,

Read before the General Session of the Illinois State Medical Society, Chicago, Ill. May 21, 1941.

From the Departments of Otolaryngology, Washington Univ. School of Medicine, & The Oscar Johnson Institute; & the Barnard Free Skin & Cancer Hospital, St. Louis, Mo.

and in foci of infection about the sinuses and throat.

4. Achalasia of the esophagus, "cardio-spasm" to most observers, is actually a diffuse dilation of the esophagus and failure of the diaphragmatic pinchcock to open, according to Jackson²; but here again characterized by slowly increasing dysphagia at times and regurgitation.

5. The hysterical dysphagia of Plummer and Vinson³, is typified by gradual onset of difficulty in swallowing solid foods, glossitis, anemia, and enlargement of the spleen.

6. Globus Hystericus, a term which has been discarded by many observers, actually is seen in persons sustaining psychic shock, and in young girls at adolescence; the lump in this patient's throat is more imaginary than real, swallowing is not actually impeded, and the patient is managed by neurological routine rather than diagnostic procedures, the simplest of which makes the problem more difficult.

7. Diverticulum of the esophagus, a pulsion phenomenon caused by overaction of the criopharyngeal muscle when at that level, or by inflammation of the muscular esophageal wall when lower down, is a disease of middle age, rarely occurring before forty; it is recognized by gurgling noises when swallowing food and the recovery of excess secretions in the mouth during sleep.

Carcinoma of the esophagus, rare under forty years of age is five times more frequent in the male, more commonly recognized in recent decades as the leading basis for esophageal obstruction, extremely malignant, and so far, an entirely uncontrolled disease. Symptoms, when present, are typical.

1. *Dysphagia*: Subjective symptoms, of the mildest grade, form the early basis of diagnosis of carcinoma of the esophagus, and the first is disturbance in normal swallowing, long before actual difficulty is noted. The patient is reluctant to see the doctor for such a complaint, but notes its persistence. A stage is reached when food "sticks in the throat," has to be masticated carefully or is painful when taken in average amounts, and is regurgitated a few seconds after ingestion, even liquids. Choking, when it occurs at this stage may be due either to the constriction or to spilling over of liquids into the

trachea. This would indicate almost complete closure of the lumen of the esophagus. It is likely that "vomiting" described in this connection is really regurgitation. It has been called "esophageal pseudo-vomiting." Actual difficulty in swallowing food is uncommon in neurotic patients.

Esophageal dysfunction was already present as a definite symptom in 100 of the 106 cases in this series by the time of admission to hospital, of the remaining six three had been vomiting and a diagnosis made by Roentgen study with barium swallow. Some difficulty in swallowing was given as the initial symptom in 82 cases. Pain was initial in only 11 cases, hoarseness in 5, cough, vomiting or choking each in 2 cases.

2. *Pain*: Actual painful sensations are contrary to the rule until closure of the esophageal lumen has progressed to an obstructive extent, but certain cases have a vague discomfort or fullness beneath the upper or lower part of the sternum. "Heartburn," an epigastric pain when food is taken, may be the first sign of ulceration in a malignant lesion at the cardia. A sticking sensation in the throat on swallowing may denote hypertrophy or inflammation of the lingual tonsils. Complaint of a lump or tightness in the throat is often associated with hypothyroidism. Mild symptoms in esophageal cancer are conspicuous by their scarcity. This is taken by Vinson⁴ to indicate that there are no early symptoms and that from the very beginning of symptoms the lesion has already progressed extensively.

The patient may note that food seems to stop at a certain level with a sense of oppression beneath the sternum in the same plane. It has been stated, (Abel⁵), that the level of this sensation may have no relation to level of the lesion in the esophagus. However, recent experiments notably by Jones⁶, indicate that levels actually are correlated. After introducing a distensible balloon attached to a fine rubber tube to a definite level of the esophagus and stretching it so that "In the upper third the localization was for the most part in the midline at the episternal notch or directly under the first portion of the manubrium . . . when the balloon was moved to the level of the mid-esophagus each of twenty-five subjects referred any sensation to the midline. In most instances the localization was sharply defined. Eighteen localized it almost

over the balloon, deep under the middle of the sternum; . . . with distention of the balloon in the lower third of the esophagus at a point just above the cardiac end of the stomach, all but four patients experienced a well-localized sensation of discomfort in the midline under the xiphoid." He noted that reference of the sensations caused by distention of the esophagus was fairly constant, but that the character of the discomfort varied a great deal.

In this group of cases the sensations were described as follows in order of frequency; fullness, pressure, burning, uncomfortable sense of constriction, sharp pain, prickling sensation, acid taste, aching and numbness over the chest. In 42 cases the location of pain was described and the level of the lesion was noted. It was found that there was a rough but definite correlation of levels of lesion and pain — pain in or above the sternum came from lesions in the upper third eight times, in the middle one time and in the lower once. Two cases had pain referred to the ear with lesions at the cricopharyngeus. Lesions in the middle and lower thirds had substernal pain in about equal numbers, that is, thirteen middle, twelve lower and two upper.

3. *Hoarseness and Cough*: Hoarseness, which is present only occasionally, is due to recurrent paralysis when the tumor involves a recurrent laryngeal nerve by extension of carcinoma of the cervical esophagus. Cough is more common and is the result of spilling of excess mucus into the larynx, or spilling over of fluids when swallowing is attempted.

Case 1. J.F., a 72 year old white man, complained of increasing dysphagia with regurgitation for five months previous to his admission to hospital on May 4th, 1937. He had never brought up blood, and there was no loss of weight. Besides a moderately advanced arteriosclerosis, he had a bilateral inguinal hernia. He also had a marked kyphosis and left scoliosis with very bent hunch-back effect, from an injury to the spine sustained twenty years before.

Barium x-ray revealed that "the lower third of the esophageal tract did not indicate complete obstruction but the irregular defect presents suggestive wall infiltrations, probably malignant. Fluoroscopically for a period of five minutes the barium meal showed decreased motility or partial obstruction." One week later "re-examination of the esophagus after administration of antispasmodic medication does not show any relaxation of the strictured area. The present findings point more definitely towards malignancy."

On August 20, 1937, gastrostomy was done by Drs. Sherwin and Martin because of complete obstruction,

and urgent nutritional need. He was carried along on tube feedings at home, and did well on digitalis routine.

Esophagoscopy was considered safe on the basis of his improved heart condition, and was done on March 5, 1940. "At 25 cm distance from the incisor gums the lumen narrowed, to a stricture-like opening similar to lyc scarring. (Fig. 1) Although very small, it was easily dilated with stiff catheters, which passed to the stomach. No evidence of malignancy was seen." No reaction followed the dilation, and he began at once to swallow liquids well. In spite of advice, he did not return for further dilatations.



Fig. 1: 2-28-40. J.F., "Barium x-ray shows the esophagus well outlined in lateral view. There is a localized area of narrowing in the lower third of the esophagus. The proximal portion of the esophagus is slightly dilated. The portion of the esophagus distal to the narrowing is normal in caliber. A lateral view of the thoracic vertebrae reveals an old compressed fracture of the tenth vertebra, this being just opposite the narrowing in the esophagus. It is quite logical to assume that the narrowing seen in the esophagus is the result of some fibrosis and peri-esophageal adhesions directly related to the trauma sustained twenty years ago." Dr. E. C. Ernst. (This was confirmed at autopsy after the patient's death at St. Louis City Hospital, six months later.)

Case 2. R.S., a man aged 72 years, was an employee of the hospital. He was treated during April and May 1940 for an almost complete exfoliative dermatitis. He was first seen by the Ear, Nose and Throat Service on August 2, 1940, with the complaint of hoarseness of three weeks duration. This came on suddenly and did not improve. His voice became falsetto. There was no previous trouble with the voice on

other complaints. Examination revealed paralysis of the left vocal cord and fixation of the arytenoid. X-ray of the chest was negative. Accordingly on September 9th, a Lynch suspension laryngeal examination was done. The only finding was slight swelling of the left arytenoid. He was re-admitted September 4th, because of the skin condition. Chest x-ray was repeated for possible mediastinal mass but it showed only thickened pleura. He began to lose weight and have difficulty in swallowing in October. On December 22nd a barium swallow was done. It was reported that some of the barium spilled over into the trachea and this was interpreted as due to the paralyzed vocal cord. February 4th, he was re-admitted to the hospital much weaker, unable to swallow fluids freely, and having lost 35 pounds of weight. X-ray was advised with special attention to the mediastinum. A barium swallow showed a filling defect in the upper half of the esophagus and there was a spill-over into the trachea. Esophagoscopy was done on the 8th; revealing a hard annular mass at the cricopharynx 12 cm long. It was dilated and biopsied. The biopsy showed carcinoma, squamous cell. He was given x-ray palliatively. He became weaker and died March 13, 1941.

Case 3. G.H. This was a 65 year old waiter who gave the history when admitted to Barnard Free Skin & Cancer Hospital on January 7, 1941, of dysphagia for 2½ months and extreme hoarseness for three weeks. Besides general emaciation he showed enlarged firm cervical glands above the right clavicle. Laryngeal examination revealed fixation and enlargement

of the arytenoids, giving the impression of a lesion in the crico-pharynx. (Fig 2a-2b) Esophagoscopy examination was limited by an obstructing mass filling the crico-pharyngeal space, arising from the anterior surface of the esophagus. This tumor appeared to be primary in the esophagus and biopsy and reported as squamous cell carcinoma.

Following esophagoscopy respiratory difficulty increased and tracheotomy was necessary the following day. He ran a fever course incidental to a mild bronchopneumonia for two weeks, and was considered improved, enough for gastrostomy on January 21, 1941. Just before operation and before any anesthesia, the patient collapsed, developing increased reflexes over the right side. He was diagnosed as cerebral hemorrhage but ran a septic temperature beginning that day. Both from physical signs and x-ray study of chest this was determined to be an aspiration pneumonia, with pleurisy. The condition improved on sulfathiazol medication. Without change in symptoms the patient expired suddenly January 25, 1941.

Anatomical diagnosis at autopsy gave the primary site of the tumor in the larynx, with extension to the trachea, esophagus, and right lobe of the thyroid. Multiple abscesses of lower lobe of right lung and pleurisy were found.

Case 4. C.T., an unemployed white man age 66 was admitted to the hospital on November 7, 1940. He gave a history of prolonged malnutrition and neglect, vague in detail, except that two years before he had had a spell of diarrhea, occasionally bloody. He then



Figure 2a-2b: 12-31-40. G. H., "The lateral projection of the cervical or laryngeal region reveals an irregular mass arising from the superior portion of the larynx, posteriorly, and appears to be pushing forward. This can be noted by the displacement of the air column. (Fig. 2a) The epiglottis and hyoid bone are normally outlined. This displacement is more obvious after the administration of a small amount of barium. A com-

plete obstruction of the upper portion of the oesophagus can be seen. (Fig. 2b) The mass is pushing forward against the upper portion of the thyroid cartilage. A small amount of barium can be seen in the ventricle. The A-P view reveals the mass to be arising from the left side, possibly the left pyriform fossa, because this area fails to fill with barium." (Dr. E. C. Ernst).

had increasing constipation, burning in the epigastrium with flatus, and gradual loss of weight. Burning and difficulty in swallowing came on gradually. "For two months there has been continuous pain and aching in the epigastrium, cough and rapid loss of appetite. For the past month has had pain in the chest, sore throat, and hoarseness. At present he has a paroxysm of coughing when he tries to swallow either solids or liquids. Sometimes there is a lancinating pain in the lower left chest." Examination revealed paralysis of the right vocal cord, weakness of the left, diminished gag reflex, and both pyriform sinuses full of saliva. The left posterior cervical glands were palpable. Heart sounds were soft, lungs clear, the blood pressure 160-90. The liver was palpable three fingers below the costal margin, smooth, and not tender. Laboratory examination showed urine to be alkaline, with specific gravity of 1.014. The blood count was r.b.c. 4.15 million, Hemoglobin 90%. He was esophagoscoped November 14 and 16. The scope passed easily to the cricopharyngeus where a hard granular non-ulcerated wall was encountered into which a thread passed but no lumen could be found.

He was referred accordingly to Dr. Womack, who performed a gastrostomy on November 19, 1940. Biopsy of a skin nodule removed from the abdomen at that time showed metastatic squamous cell carcinoma. His nutrition failed to improve, and he died one month later.

Autopsy showed "an annular constriction of the esophagus at its origin from the hypopharynx, of

firm white tumor tissue. The lumen is constricted to a narrow slit. There is superficial ulceration of the mucosa. The tumor extends forward into the wall of the trachea at a level 3 cm below the larynx, but without ulceration. There are metastatic nodules in the wall of the esophagus, in the adjacent lymph nodes in the thyroid gland and over the pleural surfaces, both visceral and parietal, extending to the domes of the diaphragm."

Case 5. Wm. E. H., 54 years old sheet metal worker was admitted on February 18, 1941, to Barnard Free Skin and Cancer Hospital with the complaint of soreness in his throat, increasingly painful for one month. The condition began eleven months before, with steady loss of weight (30 lbs.), hoarseness and total inability to swallow recently. Examination by his local physician produced no findings and he suspected cancer of the esophagus.

Laryngoscopic study on admission showed the left false and true cords fused in a large mass, in the center of which was a larger irregular ulcer, necrotic at its center, its edges raised. The left arytenoid was enlarged with a pale swelling. All laryngeal mucosa was pale and the pharyngeal mucosa dark red with heavy granulations. Biopsy taken from the edge of the ulcer showed no evidence of malignancy, and no evidence of microscopic tubercle formations. There were, however, large numbers of giant cells, and foci of necrosis in the inflammatory exudate. A tentative diagnosis of tuberculosis was made.

He was given a poor prognosis and referred for routine tuberculosis care.



3a

Barium x-ray studies of the esophagus showed the lumen normal and the opaque material passed well. (Fig. 3a) A plate of the chest showed far advanced



3b

bilateral pulmonary tuberculosis with pneumo-thorax of the right upper lung, and collapse of 25% of its total volume. (Fig. 3b)

Case 6. K.M., a 56 year old white male, was admitted to Barnes Hospital on September 10, 1940, complaining of difficulty in swallowing for five months. Barium visualization showed tumor growth closing almost the entire middle third of the esophagus. (Fig. 4) Esophagoscopy for biopsy was done on admission, removing tissue from a spot at 26 cm level. This showed squamous cell carcinoma, of high malignancy. Dilatation as limited, and complete obstruction occurred within two days afterward. Jejunostomy was done by Dr. Womach on September 13, 1940, with very little reaction.

On September 21, 1940, 75 mgm of radium was applied within the esophagus, using six needles of 12.5 mgm each, placed in series within a rubber cath-

days later, passing the dilators with ease beyond the constriction. Nourishment was easier after each dilatation and never did he show unfavorable reactions following.

Beginning about January 5, 1941, he had constant pain in left shoulder and neck. Such pains began also in the epigastrium and back at margin of the left ribs. February 9. At this phase his lack of interest in food increased, the esophagus seemed totally obstructed. His weakness and loss of weight increased, in spite of adequate feedings by the tube. Evidence of intestinal obstruction appeared on March 21, and he expired March 22, 1941. Autopsy showed extensive periesophageal carcinoma, with metastases to lymph glands of abdomen and to the liver structure.



Figure 4. 9-10-40. K.M., "Special oesophagus examination shows a constricting, infiltrating lesion several centimeters long at the level of the bifurcation about the juncture of the upper middle third of the esophagus fairly characteristic of malignancy and with only slight dilatation proximally." (Drs. Sherwood Moore and Wendell Scott).

eter. The catheter was passed after fixation to swallowed black silk. The total radiation was 1275 mgm hours, the treatment lasting 17 hours.

Esophagoscopy for dilatation was done eight days later, and biopsy made then showed general deterioration of malignant tissue. He was generally so improved with easier swallowing that he took adequate liquid diet by mouth, refusing to use the gastrostomy tube.

He reentered hospital December 15, 1940, general external radiation was begun, over back and sides, continued daily for one week. Esophagoscopy was done on December 24, dilating lumen with french catheters, up to size No. 22. This was repeated ten



Figure 5. Additional Case: 9-26-33: F.R., "The fluoroscopic examination of the oesophagus by means of a thick barium paste now shows a distinct narrowing beginning above the sterno-clavicular area, and extending several inches below this point. The character of the constriction is rather smooth and is not distinctly typical of carcinoma. The aortic vessels about the arch show distinct saccular dilatation accompanied by expansile pulsation indicating aneurysm. In view of the aneurysm findings of possible luetic origin, the constriction of the oesophagus must be considered also of possible luetic pathology. (Dr. E. C. Ernst).

Autopsy: Aneurysm of the Aorta. Luetic Esophagitis. Carcinoma of Oesophagus, Middle Third.

It is of interest to note the length of time that elapses before patients have a definite examination. The patient himself exercises a certain option, and as noted by Cooper⁷ the medical clinic adds to this delay. In the case of cancer

of the stomach he found the patients delay was six months to which four months was added while actually under observation.

In this series of 106 cases, only four were examined during the first month of symptoms, and 57 seen during the first five months. The remainder were scattered through six months to two years of complaint history.

The occurrence in decades of life corresponds to previous reports, i.e., 4 cases in fourth decade, 8 in the fifth, 32 in the sixth and 42 in the seventh, the usual age peak. There were 17 in the eighth decade and two in the ninth. The preponderance of males was 92 to 14 or 5.5 to 1 the usual stated ratio being about 5 to 1 (Bird).⁸

COMMENT:

In addition to the 106 cases of carcinoma primary in the esophagus there were several cases in which the esophagus was invaded by cancer of adjoining organs — two each from the larynx, and from the cardiac portion of the stomach, and one from the trachea. These had symptoms referable to the primary growth, namely, hoarseness and cough from the larynx and trachea, and tarry stools and epigastric pain from the stomach. One year later one of the larynx cases after apparent cure with x-ray therapy developed dysphagia due to a metastasis in the middle third of the esophagus with pearl formation typical of the original laryngeal lesion. There were two cases in which the esophagus was invaded by metastatic growth — one from the breast and another from the stomach. One case with x-ray diagnosis of carcinoma of esophagus but with no esophagoscopy or biopsy, received one dilatation only, yet was well two years later; this is obviously something other than cancer of the esophagus and shows the fallibility of x-ray alone.

The average survival of the 48 cases with date of death reported was 7.6 months; hence, the short duration of this disease in a majority of cases is shown and the urgent need for prompt action by both patient and doctor.

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THE TREATMENT OF PNEUMONIA

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The purpose of this paper is to report our experience with sulfapyridine, sulfathiazole and the combined chemo and serotherapy in the treatment of 460 cases of lobar pneumonia in adults seen during the period from January 15, 1939 to June 1, 1940. Many reports have appeared in the literature during the past two years on the use of these methods of treatment. All have substantiated the observation that the mortality rate has been markedly reduced. (25-30% to below 15%)

In this study the clinical diagnosis of pneumonia was established by the history and physical examination. An x-ray examination was obtained on approximately 60% of the patients. This confirmed the clinical diagnosis in all patients so studied. The blood of all patients was cultured in buffered dextrose heart infusion broth. Routine sputum examination and typing by the Neufeld capsule swelling reaction was made immediately after admission; and all sputums which failed to give a direct Neufeld reaction were inoculated into the peritoneal cavity of a mouse. If sputum could not be obtained and blood culture yielded no growth in 18-24 hours, lung puncture was performed. All laboratory work was repeated on those patients who failed to respond within 48 hours. Blood counts were made on admission and on alternate days until

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the patient recovered. A microscopic test for the homologous agglutinin in the blood and Francis (SSS) Test were made frequently in about 40% of the patients.

The dose of sulfapyridine used throughout this study was as follows: an initial dose of 2 grams was given and repeated in two to four hours. A maintenance dose of one gram every four hours day and night was then given, and continued until the temperature dropped to normal and remained so for two more days. From this point, one gram was given every six hours. The drug was stopped when the patient developed signs of active immunity and showed signs of clinical recovery. As an index of active immunity considerable reliance was placed on the Sabin agglutination test. We felt that sulfapyridine should be continued until a strongly positive agglutination with the patient's serum against homologous antigen appeared.^{1, 2} The average daily dose in this series was 5 grams. The average total dose per patient was 31.5 grams. The largest amount of drug given to one individual was 122 grams in 22 days. The dose of sulfathiazole used in this series was similar to that of sulfapyridine. An initial dose of 4 grams was given and then

followed by one gram every four hours, day and night. Cessation of treatment was determined by the presence of a strongly positive agglutination test against homologous antigen. The free sulfapyridine or sulfathiazole blood levels were determined within 24 hours after treatment was instituted and then repeated each alternate day.

The solutions of sodium sulfapyridine or sodium sulfathiazole that were used intravenously, were prepared just before administration by dissolving 5 grams in 100 cc. of distilled water or physiological saline solution that had been previously brought to a temperature just below boiling point. The fluid was given intravenously at a rate of 5 to 10 cc. per minute; or if the patient was getting parenteral fluids the solution was injected into the tubing of the infusion set. In some instances when sodium sulfathiazole was used, it was mixed with the fluid in the infusion flask. One dose given parenterally usually sufficed. If additional drug was necessary, it was given in 12 to 24 hours.

Table I summarizes the type incidence, bacteremic incidence and mortality rate of all the pneumonias treated. Of the 443 patients with pneumococcic pneumonia there were 26 specific

TABLE 1

TYPE	A. SULFAPYRIDINE				B. SULFATHIAZOLE				C. S. P. — SERUM				D. SERUM				E. TOTAL SERIES			
	T.	D.	B.	D.	T.	D.	B.	D.	T.	D.	B.	D.	T.	D.	B.	D.	T.	D.	B.	D.
I	69	7	19	4	7	—	3	—	6	2	2	2	5	—	1	—	87	9	25	6
II	75	10	24	9	18	3	7	2	15	4	8	3	6	—	3	—	114	17	42	14
III	32	1	2	1	1	—	—	—	3	1	1	1	—	—	—	—	36	2	3	2
IV	13	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13	1	—	—
V	13	1	2	1	2	—	1	—	—	—	—	—	—	—	—	—	15	1	3	1
VI	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—
VII	42	2	6	1	9	—	1	—	4	1	1	1	1	—	—	—	56	3	8	2
VIII	36	2	4	1	1	—	—	—	1	—	—	—	2	1	—	—	40	3	4	1
IX	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1	—	—
X	1	—	—	—	—	—	—	—	1	1	1	1	—	—	—	—	2	1	1	1
XI	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
XII	5	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	6	—	2	—
XIV	7	—	3	—	1	—	—	—	—	—	—	—	—	—	—	—	8	—	3	—
XV	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
XVI	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
XVII	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—
XVIII	5	—	2	—	2	1	1	—	—	—	—	—	—	—	—	—	7	1	3	—
XIX	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—
XX	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—
XXII	4	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	4	2	1	1
XXIII	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—
XXIV	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1	—	—
XXV	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
XXIX	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
XXXII	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
XXXIII	2	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	2	1	1	1
Pnc. Uncl.	28	2	—	—	2	2	—	—	—	—	—	—	—	—	—	—	30	4	—	—
Strep.	12	4	5	4	—	—	—	—	—	—	—	—	—	—	—	—	12	4	5	4
Friedlanders	4	2	2	1	—	—	—	—	—	—	—	—	—	—	—	—	4	2	2	1
Staph.	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1
TOTAL	371	38	75	25	45	6	13	2	30	9	13	8	14	1	4	0	460	54	105	35

Died within 24 hours — 21. Corrected Mortality — 7%.

pneumococcic types represented. Type I accounted for 87, or 19.6%; type II for 114, or 25.7%; type VII for 56, or 12.6%; type VIII for 40 or 9.3%; and type III for 36 or 8.1%. In 30 patients the pneumococcus was recovered but could not be typed with 33 specific types of sera used. These are listed as "pneumococci unclassified" in Table I. Of the 460 patients treated, twelve had streptococcic pneumonias, four Friedlanders and one staphylococcic pneumonia.

Of the group of 354 patients (Table 1A) with pneumococcic pneumonia treated with sulfapyridine alone there were 31 deaths, a mortality of 8.8%. Of the 31 deaths, 15 occurred within 24 hours making a corrected mortality rate of 4.7%. Bacteremia was present in 67 patients and of these, 19 died. Thirteen of the 19 died within 24 hours. The mortality rate of the non-bacteremic group (287 patients) was 4.2%. Eighty patients received intravenous sodium sulfapyridine plus oral sulfapyridine; 5 received intravenous sulfapyridine alone. Early in this study only those patients who were critically ill were given intravenous chemotherapy. When its use was found to be safe, however, it was given routinely to (1) patients who were comatose, (2) all patients whose temperature showed no drop within 18-24 hours after initial dose of sulfapyridine, (3) patients who failed to obtain a level of 4 to 5 mg.% within 24 hours unless the temperature had returned to normal, (4) all patients who could not retain, or refused to take oral sulfapyridine by mouth because of nausea and vomiting, (5) patients with persistent bacteremia and (6) all patients who, after an initial favorable response, had a relapse.

Table 1C analyzes the 30 cases with pneumococcic pneumonia treated with both sulfapyridine and serum. Six different types were represented, but types I, II and VII were isolated in 25 of the 30 patients. Of the 30 patients treated, 9 died. Bacteremia was present in 13 patients, and of these, 8 died. Of the 9 deaths, one occurred within 8 hours of admission, another within 30 hours and a third died of anaphylactic shock during serum administration.

Table 1D analyzes a small group of patients seen early in this study who received serum alone. Fourteen patients comprise the group. Types I and II account for eleven of the 14 pneumococcic types isolated. Only one death

occurred. Bacteremia was present in 4 patients. No deaths occurred in the bacteremic group.

Table 1E summarizes all the pneumococcic pneumonias treated (all types of treatment). Of the 443 patients treated there were 47 deaths, a mortality of 10.6%. Twenty-four deaths occurred within 24 hours, making a corrected mortality of 5.5%. Of the 443 patients, 97 (21.9%) were bacteremic, and of these, 35 (36%) died.

An analysis of the fatal cases is of particular value in pointing out the factors for failure. Those influencing the course of a pneumonia, irrespective of treatment, are (1) duration of the disease before treatment, (2) age, (3) bacteremia, (4) extent of lung involvement, (5) alcoholism.

Effect of Delay in Treatment (Table II). Analyzing those patients who received sulfapyridine, the efficiency of treatment that was started after the fifth day of the disease was markedly reduced. Of the 195 patients in whom treatment was begun before the fifth day, 11 died and 47 developed complications; while of 159 patients in whom treatment was begun after the fifth day, 20 died and 74 developed complications. This delay in treatment is probably the most important single factor in prognosis and is rarely if ever controlled by the physician. Further education of the public is the only hope of giving patients adequate treatment earlier in their illness.

TABLE II
DELAY IN TREATMENT
PNEUMOCOCCUS PNEUMONIA SULFAPYRIDINE
TREATED

Day of Disease	Number	Died	Complications
1	16	0	2
2	47	2	5
3	67	5	20
4	65	4	20
5	80	6	33
Over 5	79	14	41
TOTAL	354	31	121

Effect of Age (Table III). The next factor influencing mortality in this study was age. In the group of pneumococcus pneumonias treated, there were 214 patients under 40 years of age, with 8 deaths; and 229 patients over 40 years of age with 39 deaths. In the sulfapyridine treated group, there were 177 patients under 40 with 7

deaths, and 177 patients over 40 with 24 deaths. In the combined sulfapyridine and serum group, there were 13 patients under 40, with no deaths; and 17 patients over 40, with nine deaths. In the sulfathiazole treated group, there were 15

TABLE III

EFFECT OF AGE ON OUTCOME OF PNEUMONIA
AGE S.P. S.P., SER. S.T. SER. TOTAL DIED

Pneumococcus pneumonia.

0-19	22- 0	—	2-0	1-0	25	0
20-29	63- 3	6-0	6-0	3-0	78	3
30-39	92- 4	7-0	7-1	5-0	111	5
40-49	78- 4	7-5	12-1	4-1	101	11
50-59	57-12	4-1	7-2	1-0	69	15
60-69	34- 5	6-3	8-1	—	48	9
70- 8	3- 3	—	3-1	—	11	4
0-40	177- 7	13-0	15-1	9-0	214	8
40-	177-24	17-9	30-5	5-1	229	39
Others: 12	Streptococcus	4	Friedlander	One	Staphylococcus	
0-40	12- 4	—	—	—	12	4
40-	5- 3	—	—	—	5	3
TOTAL	371-38	30-9	45-6	14-1	460	54

patients under 40, with one death; 30 patients over 40, with five deaths. Of 17 patients who were treated with sulfapyridine and whose etiology was streptococcus, B. Friedlander, and staphylococcus, 12 were under 40 years of age, with 4 deaths; and five were over 40, with 3 deaths.

Extent of Lung Involvement (Table IV). The extent of lung involvement is also of prognostic value. In the whole series 333 patients had one lobe consolidated, and there were 24 deaths (7.3%); while in 127 with two lobes or more consolidated, there were 30 deaths (23.6%). Usually the extent of involvement parallels the duration of the disease before treatment is begun and is therefore controllable only through obtaining medical care earlier in the course of the illness.

TABLE IV

EXTENT OF LUNG INVOLVEMENT (ALL CASES)

LOBES	TOTAL		DIED		
	Pnc.—Others	Pnc.—Others	Pnc.—Others	Pnc.—Others	
1 LOBE	323	10	21	3	7.2%
MORE THAN 1 LOBE	120	7	23	7	23.6%
TOTAL	460		54		11.7%

Effect of Bacteremia (Table I). Invasion of the blood stream by the pneumococcus during the course of lobar pneumonia occurred in 96 of the 443 patients. When it did occur it was a serious prognostic sign as indicated by Table I. In the 354 sulfapyridine treated patients, 67 had positive blood cultures, and of these, 19 died, while of the 287 non-bacteremic patients, there were only 13 deaths. Of 45 patients treated with sulfathiazole, there were 13 with positive blood cultures, and two died. Of the 32 non-bacteremic

patients treated with sulfathiazole, 4 died. Thirty patients were treated with combined sulfapyridine and serum. Thirteen were bacteremic with 8 deaths; 17 were non-bacteremic with one death. Failure of a patient to respond within 24-36 hours of treatment with sulfapyridine or sulfathiazole or one of these agents combined with serum was commonly due to an invasion of the blood stream by the pneumococcus.

Effect of Alcohol (Table V). In the Cook County Hospital, as in other large municipal and county hospitals, alcoholism is commonly associated with lobar pneumonia. In this series of 443 patients, 66 gave a history of being moderate to heavy drinkers, and 22 died. Of the 66 alcoholics, 29 had positive blood cultures, and 17 died. Of the 377 non-alcoholics, 32 died. Seventy-six patients in the non-alcoholic group had positive blood cultures and 18 died. Of the 318 non-alcoholics with negative blood cultures, there were 14 deaths.

TABLE V

EFFECT OF ALCOHOL

ALCOHOLISM	TOTAL	DIED
BACT.	29	17 (58.5%)
NON-BACT.	37	5 (13.5%)
TOTAL	66	22 (33%)
NON-ALCOHOLIC		
BACT.	76	18 (23%)
NON-BACT.	318	14 (4.4%)
TOTAL	394	32 (8.1%)

COMPLICATIONS — PNEUMOCOCCIC — PNEUMONIA

443 CASES	BACTEREMIA	NON-BACT.	TOTAL
BACTEREMIA	96	347	—
EMPYEMA	11	3	14
DELAYED			
RESOLUTION	10	8	18
PLEURAL EFFUSION	4	6	9
JAUNDICE (hepatitis)	4	2	6
LUNG ABSCESS	1	1	2
HYPO-CHROMIC			
ANEMIA	1	2	3
PAROTITIS	—	1	1
ARTHRITIS	—	1	1

REACTIONS

	SULFA-PYRIDINE	SULFA-THIAZOLE	SULFA-PYRIDINE AND SERUM
	371 CASES	45 CASES	30 CASES
NAUSEA & VOMITING	90	4	6
RASH	7	—	—
FEVER	6	—	—
ANEMIA	1	—	1
LEUCOPENIA	4	—	—
NPN RETENTION	4	—	1
HEMOLYTIC			
ANEMIA	1	—	1
HEMATURIA	1	—	1
CEREBRAL SYMPTOMS	1	—	—

Effect of Treatment on Physical Findings. After 12-36 hours of sulfapyridine therapy a precipitous drop in the temperature usually occurred. This happened in the presence of bacteremia and often in spite of low leucocyte counts and the absence of the homologous agglutinin in the blood. Associated with the drop in temperature there was a slowing of the pulse and the respiratory rate, and the toxicity abated. Although the improvement in the general condition of the patient was quite marked, very little change in the physical signs over the involved lung could be detected. It remained consolidated and seemed to undergo the changes seen in an untreated pneumonia. The agglutinins did not appear in the circulating blood until an average of the tenth day after onset of pneumonia. By then the patient manifested signs of overcoming the infection. Sulfapyridine therapy apparently did not affect agglutinin production. A strong reaction occurred in over 90% of patients tested. In certain patients treated within the first 24 hours of the disease, frank signs of consolidation never did appear and the signs of infection were gone within a week. With favorable response to sulfapyridine therapy, the need for oxygen and other supportive measures was decidedly lessened.

The action of sulfathiazole on the clinical findings were similar to that of sulfapyridine with the one exception, that the early response, as evidenced by a drop in the temperature, pulse, and respiration, was more gradual and often did not occur until 36-72 hours had elapsed. With sulfapyridine, on the other hand, the response took place in 24-36 hours.

Complications. Bacteremia occurred in 96 patients with pneumococcus pneumonia. In several patients it was persistent in spite of active sulfapyridine or sulfathiazole therapy. One patient had five positive blood cultures during 15 days of sulfapyridine therapy, in which time the level of free sulfapyridine in the blood varied from 4.0 mg.% to 7.8 mg.% with an average of 5.6 mg.%. This patient died on the fifteenth day after treatment was begun. Another patient had four positive blood cultures in succession over a period of 11 days, during which time the level of free sulfapyridine in the blood ranged from 1.25 mg.% to 5.25 mg.% with an average of 2.8 mg.%. A negative blood culture was

obtained on the thirteenth day of treatment. This patient developed an empyema but eventually recovered.

Empyema was observed in 14 patients and the type pneumococcus isolated from the pus corresponded to that found in the sputum. Eleven of the 14 had positive blood culture. The pneumococcal types represented were Types I, II, III, and VIII. With continued sulfapyridine treatment and repeated chest aspirations the septic course was lessened but all 14 eventually required surgical drainage. Two failed to recover.

Delayed resolution was seen in 18 patients, 10 with bacteremia and 8 non-bacteremic. All were confirmed by x-ray. Clinically, two of these patients appeared entirely well but the others developed fever of from 101° to 103° F. which persisted for several days, then subsided spontaneously by lysis. The rise in temperature often followed an afebrile period of from 2-4 days.

Sterile pleural effusion occurred in 10 patients, four with bacteremia and six with negative blood cultures. The response to continued sulfapyridine and repeated chest aspirations was favorable in all patients. Repeated studies on the pleural fluid failed to yield any organism.

Other complications which occurred were: jaundice six times, pronounced hypochromic anemia three times, lung abscess twice, acute parotitis once, and acute arthritis once.

Sulfapyridine Reaction. Anorexia, nausea and vomiting were the most common toxic reactions encountered during sulfapyridine treatment but were seldom severe enough to warrant cessation of the drug. Nausea and vomiting were present in 96 patients. In ten, the vomiting was of such a degree that the oral drug was stopped and intravenous sodium sulfapyridine was substituted. In about one third of the patients, sodium bicarbonate was given and it seemed to have little effect on the prevention of the above gastrointestinal symptoms. The administration of oxygen has been used successfully in the control of nausea and vomiting due to sulfapyridine³ but in our study these symptoms persisted in spite of oxygen administration.

The incidence and severity of nausea and vomiting with sulfathiazole was decidedly less than that of sulfapyridine and occurred in only

four of the 45 patients treated. Cessation of sulfathiazole treatment was not warranted by the degree of nausea and vomiting present.

One of the most distressing sulfapyridine reactions was fever and rash. In six patients a sulfapyridine fever was diagnosed. It usually occurred after 5-7 days of treatment, often after an afebrile period when the patient appeared clinically well. The duration of the fever varied from 2-4 days and ranged from 101° to 103° F. In two patients the fever developed when sulfapyridine was resumed after an interruption of 2-3 days which followed the initial course of several days. In all patients who showed fever and one that did not, a maculopapular morbilliform rash appeared over the torso, arms, legs, and occasionally on the mucous membranes of the palate and pharynx. The presence of fever without clinical evidence of spread of the infection, complications, and a normal leucocyte count points to a drug fever. Both the fever and the rash disappeared after the drug was stopped and fluids forced.

Anemia of the hypochromic variety occurred six times; leucopenia occurred four times; nitrogen retention occurred four times; hemolytic anemia and hematuria occurred twice, and cerebral symptoms once. All responded as soon as the drug was stopped and fluids given freely.

SUMMARY AND DISCUSSION

During the 17 month period, January 1939 to June 1940, 460 patients with pneumonia were treated. Mortality was 11.7%. Of these 460 patients, 443 had pneumococcic pneumonia. Forty-seven (10.6%) died. Deducting the number of deaths that occurred within 24 hours of admission (21) gives a corrected mortality of 7%. Four types of treatment were used. Sulfapyridine alone forms the largest group. Sulfathiazole, sulfapyridine and serum combined, and serum alone, comprise small groups.

Analysis of this group shows that sulfapyridine was effective against all types of pneumococcus encountered (26 types) and that its use is safe. No deaths could be attributed to the drug. Mild toxic reactions occurred frequently. The number of patients treated with sulfathiazole is too small to be of statistical

value. The drug is effective against the pneumococcus, and the incidence of reactions, particularly nausea and vomiting, is definitely less than with sulfapyridine. The initial response to this drug is delayed longer than with sulfapyridine. Our experience indicates that sodium sulfapyridine and sodium sulfathiazole can be used safely intravenously, and are of distinct value in establishing a therapeutic blood level immediately. They should be kept in mind by the physician treating pneumonia as an efficient therapeutic agent.

The effectiveness of serum has been definitely established in the past and further study on this method of treatment was not stressed in this series. The patients who received serum, however, showed a very satisfactory clinical response.

A study of the fatal cases indicates that the most important factor in prognosis was delay in treatment. Next in order of importance were age, extent of lung involvement, bacteremia, and alcoholism. During most of this study serum was not administered until it appeared obvious that sulfapyridine alone was inadequate as indicated by continued fever and prostration, persistent bacteremia, spread of the pneumonia to other lobes, or the inability to develop immune bodies. Toward the end of this study it was felt that under certain conditions intravenous sulfonamide therapy or serum plus sulfonamide therapy should be considered. These conditions were: duration of the disease four or more days; age over 40; involvement of more than one lobe; alcoholism and evidence of beginning septic complications or presence of associated diseases. We also feel that patients whose admission blood cultures are positive should be considered candidates for intravenous sulfonamide therapy, or serum, unless there has been a striking improvement in their condition in the interval elapsing from the time the blood culture is drawn to the time the positive blood culture is observed.

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EARLY DIAGNOSIS OF BRAIN TUMORS

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The time honored clinical triad of brain tumor — headache, papilledema, and vomiting — has long since been shown to be indicative only of intracranial hypertension, and hence usually a late manifestation of intracranial tumor.

Because of better methods of examinations and the fact that physicians now realize the frequency of brain tumors, and hence consider the possibility more often, in recent years more and more tumors have been recognized before they caused intracranial hypertension. In 1934 Ley and Walker⁷ analysed a group of 230 intracranial tumors from the service of Dr. Percival Bailey at the University of Chicago Clinics. In this series, 69.0 per cent. had papilledema. In the last one hundred cases of verified brain tumor (May 1937 to November 1939) seen at the same clinic, only 54 per cent. had choked discs. The difference in the incidence of this finding between these two series is quite significant, for the distribution and localization of the tumors in the two series was much the same. The reality of this difference is confirmed by the fact that in the first group headache (usually an indication of intracranial hypertension) occurred in 74.9 per cent. of the cases and in the second series in only 66 per cent.; furthermore, the incidence of vomiting was markedly reduced in the later series (48 per cent. in the first group; 39 per cent. in the second). This, therefore, indicates that brain tumors are being suspected and diagnosed before they produce intracranial pressure and hence in most instances on different bases than formerly. Before discussing some of the more recent developments in diagnostic technique, let us briefly review some of the early manifestations of brain tumor.

As Bailey¹ stated, there is only one cardinal symptom of tumor of the nervous system — a non-febrile, steadily increasing alteration in nervous function. But not all tumors progress in this manner — some are ushered in by sudden and startling nervous phenomena. However, practically all intracranial neoplasms manifest themselves by an alteration of nervous function. The peculiar type of nervous function

which becomes impaired, will obviously depend upon the locus of the tumor, for pathological processes in different parts of the brain produce distinct clinical syndromes.

It is obviously impossible to present all the initial symptoms of brain tumor, for such a discussion would entail a review of the entire physiology of the brain, since the first manifestation of a tumor may be either an excitation or depression of the function of any part of the brain. Some of the more common manifestations merit attention.

Headache. Although frequently evidence of intracranial hypertension, headache has occurred in 21 per cent. of the last one hundred verified brain tumors without papilledema or intracranial hypertension as determined by spinal fluid manometric readings. In general it is by far the most common initial complaint, although in children under fifteen years of age, vomiting has a slightly greater frequency. The headache is not characteristic, although frequently it is said to be more severe in the morning. It is aggravated by coughing, sneezing, or stooping. The localization of the headache is usually of no assistance in determining the position of the tumor, although occasionally the pain is definitely referred to the site of the tumor. The headache of brain tumor is often no different than that of many other conditions. The symptom *per se*, then, does no more than invite the physician to examine carefully the nervous system for more definite evidence of intracranial pathology. It is unusual for headache alone to be the only manifestation of a brain tumor.

Vomiting. Although in most instances like headache, vomiting is evidence of intracranial hypertension, it may occasionally be a symptom of definitely localizing value. As Bailey, Buchanan and Bucy² emphasize, persistent vomiting in children, unassociated with headache, is usually an indication of irritation of the floor of the fourth ventricle, most frequently resulting from a glioma of the pons or a tumor of the fourth ventricle.

This symptom is more common in children, and characteristically occurs early in the morning, even before breakfast. Although usually associated with nausea the patient is commonly quite prepared after the attack to eat another breakfast. This is not invariably true, however, and in some instances a severe anorexia, result-

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ing in emaciation, is associated with the nausea and vomiting. The vomiting is rarely projectile but may be explosive. It seems to relieve the headache that frequently accompanies it. In children, vomiting may occur day after day, but in adults it is usually less frequent unless the patient is on the verge of coma from intracranial hypertension. Repeated attacks of vomiting without adequate cause should always lead to the suspicion of intracranial neoplasm.

Convulsions. This is a very frequent initial symptom of a brain tumor. In the first series of 230 cases of brain tumor, 17.9 per cent. of the patients presented it as their first evidence of intracranial pathology. It is practically always evidence of a supratentorial tumor, although patients with cerebellar tumors are known to have generalized seizures. More common, however, are the so-called cerebellar fits or tonic opisthotonic attacks, in which the head is retracted, the back arched, and the limbs tonically extended. Respiration may cease in such attacks and death ensue. In children a fit does not cause undue alarm to parents or physician since idiopathic epilepsy is so common at that age, but in adults the occurrence of a generalized convulsion is a matter of grave concern. After twenty years of age the incidence of idiopathic epilepsy is less than 20 per cent. and at forty years only five to six per cent. Every adult having a seizure for the first time should be suspected of harboring an organic brain lesion, possibly a tumor, until proved otherwise. Statistically such an individual has about equal chances of suffering from cerebral vascular disease, cerebral lues, brain tumor, or no demonstrable organic brain pathology.⁹ And the examination should not only be the routine clinical neurological checkup, but should also include electroencephalography and possibly air encephalography, for many of these cases will have no demonstrable clinical evidence of cerebral dysfunction at the time of their first attack, and yet harbor pathology which may be shown by one of the above mentioned special methods.

The type of convulsive attack and particularly its beginning is of especial value for a localizing diagnosis. An epileptic attack beginning with a motor or sensory aura in one part of the body generally indicates a focal lesion in the cerebral cortical representation of that portion of the body. For example, a forty-year old housewife,

who suffered from attacks beginning with a spasm of the jaws and clonic movements of the right side of the face, was found to have a small meningioma overlying the face representation in the left motor area. Similarly an attack beginning with twitching of the foot, then of the leg, spreading to the thigh and ipsilateral arm (Jacksonian epilepsy) is typical, although not pathognomonic of a parasagittal meningioma. Somatosensory, auditory, visual, olfactory and gustatory aura have similar localizing significance to their respective cortical representations. The tonic opisthotonoid seizure associated with tumors of the posterior fossa has already been mentioned.

Failing vision. Impairment of vision as an initial symptom of brain tumor is not infrequent (13.7 per cent.). It is almost always associated with a lesion above the tentorium and usually with a tumor pressing upon the optic nerves, chiasm or tracts. A careful examination of the visual fields is often of great value in the accurate localization of the lesion.

Progressive paralysis. In spite of the fact that a steady progressive loss of cerebral function is the one cardinal symptom of intracranial neoplasm, a progressive paralysis is not nearly as common an initial symptom as might be imagined. A neoplasm involving the motor areas usually gives rise to a convulsive seizure before the weakness becomes prominent. Although a progressive paralysis usually indicates a lesion of the cerebral hemispheres, a pontine or mesencephalic tumor occasionally gives rise to such a condition.

This symptom — a slowly progressive paralysis — is not pathognomonic of a tumor. It may be produced by many other conditions — spinal cord neoplasm, amyotrophic lateral sclerosis, Pick's disease, or other degenerative conditions. In these conditions epileptic attacks with or without a focal beginning are rare, so that if a progressive weakness is associated with convulsive seizures a cerebral neoplasm is likely; if unassociated with such attacks, a degenerative disease is more apt to be the etiological factor.

Staggering gait. Less frequently the patient complains of an unsteady gait and almost invariably the tumor is found in the posterior fossa. Such tumors being more common in children, this difficulty is not frequently seen in adults suffering from cerebral neoplasms, al-

though acoustic neurinomas do cause such a disturbance.

Other initial symptoms of brain tumor. Only a few of the many complaints that may be the first warning of a brain tumor have been mentioned. Many others might be cited: the tinnitus and deafness, which exists for many years before the patient seeks relief from an acoustic neurinoma; the progressive exophthalmus, which characterizes the sphenoidal ridge meningioma; the progressive enlargement of the hands and feet with loss of pep and libido, which indicate pituitary dysfunction; and the somnolence and obesity, which accompany tumors in the region of the third ventricle. Not uncommonly a sudden hemiplegia resulting from thrombosis or hemorrhage in or about a tumor will herald its presence. This is particularly true of the onset of the malignant cerebral gliomas of middle life.

Clinical signs of brain tumor. A careful neurological examination of the brain tumor suspect will usually reveal some evidence, even if only slight, of dysfunction of the nervous system. The nature of this defect will depend upon the site of the tumor and hence may involve any of the processes that the brain normally performs.

Spinal fluid findings. The examination of the spinal fluid in most cases of brain tumor is of little value in assisting in a diagnosis, and where intracranial hypertension exists is definitely hazardous. Under the latter circumstances a lumbar puncture may precipitate a hemorrhage into the tumor or cause medullary compression by allowing a herniated cerebellar pressure cone to jam further into the foramen magnum. Because of these dangers and the usually meager information gained, lumbar puncture is not advocated when papilledema is present or when a cerebellar tumor is suspected. When choked discs are not present, lumbar puncture in patients with brain tumor may reveal increased pressure, usually of a moderate degree. (I have seen a pressure of 400 mm. of spinal fluid, twice the normal, in the absence of papilledema.) But frequently the spinal fluid is under normal or even a subnormal pressure (in one patient with a large left temporal glioblastoma, 50 mm. of spinal fluid, and in another comatose patient with a left temporal lobe mixed astrocytoma and oligodendroglioma 95 mm. of spinal fluid). Hence a normal or subnormal spinal fluid pressure, even in a comatose patient does

not eliminate the possibility of an intracranial tumor. The protein as determined by Pandey's test and quantitatively is frequently increased, particularly if the tumor is near the ventricular wall or is an acoustic neurinoma. Cells up to several hundred may be present in the spinal fluid, but are practically always accompanied by an increased protein. Occasionally the colloidal gold curve is abnormal — usually parietic in type — especially in the case of an acoustic neurinoma. The chlorides and sugar are usually normal. It is, therefore, obvious that the value of a lumbar puncture in cases of brain tumor is not so much in confirming the diagnosis as in eliminating other possible etiological factors such as chronic meningitis, cerebral lues, etc.

Electroencephalographic manifestations. As early as 1875 Caton⁵ demonstrated the presence of changing electrical potentials in the brain. It was Berger³, however, over fifty years later, who showed their importance and popularized the study of brain potentials or, as they are commonly termed, "brain waves." When pathological conditions, particularly tumors, are present in the brain, the electrical potentials are frequently interfered with, thus giving us another means by which we may determine the presence of an intracranial neoplasm.

The electroencephalogram is made by leading off the electrical potentials from different points by small silver discs applied to the intact scalp, amplifying them and recording them on an ink writer. Usually the potentials from several areas are recorded simultaneously. The procedure has the distinct merit that it does not inconvenience the patient in any way, and causes no after effects. Normally in man, waves having a frequency of 7.5 — 11 per second (alpha waves), 14 per second and 18 - 35 per second are found. Certain other frequencies occur in physiological states such as sleep, or in pathological conditions. Case and Bucy⁴ have pointed out that intracranial lesions are indicated by the presence of one or another of the following electroencephalographic phenomena in one or more of the cortical areas:

1. Very slow swings 1 - 2 in five seconds.
2. Slow waves $\frac{1}{2}$ to 3 per second.
3. Spikes and saw tooth phenomena.
4. Localized electrical manifestations of epileptic seizures.
5. Absence of or marked difference in alpha

waves on the two sides.

6. Marked diminution or localized absence of electrical activity.

The slower waves are more commonly seen in degenerative or atrophic conditions, whereas the 1 - 3 per sec. waves, spikes, etc. are apt to be associated with neoplastic diseases of the brain.

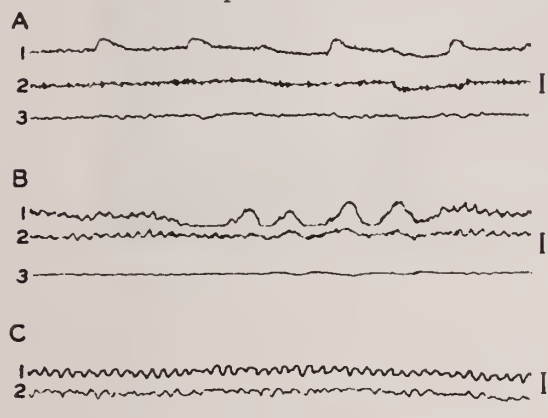


Figure 1.

Figure 1. The typical electroencephalogram of a normal person. (Leads — 1, right frontal, 2, right temporal, 3, right occipital.) In the first lead the humps are due to blinking movements and should not be confused with delta waves. In the second lead, the small spikes are the result of muscular discharge and must be differentiated from epileptic manifestations. In the third lead the indistinct alpha waves are probably to be associated with the fact that the patient had his eyes open.

B. An electroencephalogram of a patient suffering from a left frontal lobe tumor. (Leads — 1, left frontal, 2, right frontal, 3, right temporal.) Large 2 per second delta waves are pronounced in the left frontal lead, and absent in the other leads. The alpha rhythm is evident in both frontal leads.

C. The electroencephalogram of a patient with a left temporo-occipital lobe tumor showing the disparity of the alpha waves on the two sides. (Leads — 1, right occipital, 2, left occipital.)

The time in seconds is indicated at the bottom of the tracings; the vertical lines at the right indicate the deviation produced by 100 millivolts. (These electroencephalograms are reproduced by the courtesy of Dr. Theodore J. Case.)

Let us examine the recent series of brain tumors to determine the frequency with which electroencephalographic disturbances are encountered. In exactly one half or fifty of the cases, electroencephalographic records are available. In twenty-four cases the findings were sufficiently clear to warrant an interpretation as to location of the tumor. In eighteen of these cases a correct electroencephalographic diagnosis was made, and in five other cases it was suggested.

In only one case — an early one — was an inaccurate localization made, and that error might have been avoided at the present time. In twenty-six cases, ten of which were tumor of the posterior fossa, there was insufficient evidence for a diagnosis. It should be pointed out that, with the present techniques, cerebellar lesions have rarely shown alterations in the electroencephalograms.

Although the localization of the majority of these tumors was apparent from the clinical examination, in twenty-four of the fifty cases air studies were made because the examiner was not certain of the exact location of the tumor. In eleven of these cases the electroencephalogram correctly localized the lesion. In one of these cases, even after ventriculography, the localization of the tumor was erroneous and in spite of the electroencephalographic findings the posterior fossa was explored when a frontal lobe tumor was present.

The electroencephalogram is, therefore, a valuable adjunct in the diagnosis of intracranial lesions. It is not diagnostic in every case, but when positive evidence of neoplasm is present the findings are quite reliable. Since the procedure causes the patient no inconvenience, it may be repeated on several occasions, increasing the chances of a correct localization.

Roentgenological Manifestations of Brain Tumor. Roentgen ray examination of the skull is another important diagnostic instrument. Many evidences of intracranial neoplasm are so revealed. I need only mention the enlargement of the pituitary fossa in acromegaly and chromophobe adenomas of the hypophysis, the suprasellar calcifications in craniopharyngiomas, the intracerebral calcifications in oligodendrogliomas and astrocytomas, the erosions and increased vascularity of the calvarium in certain meningiomas, the enlargement of the internal acoustic meatus and optic foramen with acoustic neuromas and gliomas of the optic nerve respectively, and the bony proliferations overlying meningiomas, especially of the sphenoidal ridge. These changes are well known, usually easily recognized and practically pathognomonic of the respective type of brain tumor. Roentgenograms of the head may assist in the diagnosis of brain tumor by revealing displacements of the calcified pineal gland, for it normally lies exactly in the mid-line of the skull.

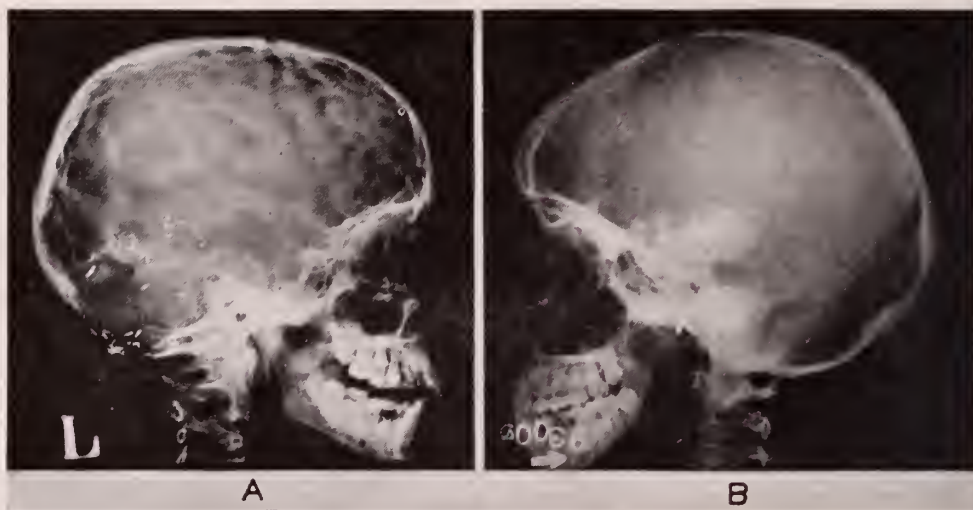


Figure 2.

Figure 2. Roentgenograms of the skull to show:

A. Convolutional atrophy of the calvarium and sutural diastasis, the result of a large cerebellar astrocytoma, the size of which can be estimated by

the silver clips used to control bleeding at the time of operation.

B. A large calcified suprasellar tumor.

One should not forget that an x-ray photograph of the chest may clear up a puzzling cerebral syndrome by revealing primary or secondary pulmonary tumors when only cerebral manifestations are present.

Encephalography and ventriculography. Valuable as the roentgenological examination of the skull is, it becomes still more important when it is made after the cerebrospinal and/or ventricular fluids have been replaced by a gas allowing visualization of the shape, size and position of the brain substance.

When Dandy⁶ introduced the method of ventriculography in 1918, he gave to the neurologist and neurosurgeon one of the most useful diagnostic methods now at his disposal. Since that time the normal appearance of the cerebrospinal fluid pathways and ventricular system have been described in detail. Ventriculography is the term applied when the cerebral ventricles are directly punctured and the fluid replaced by a gas; encephalography denominates the replacement of the spinal and ventricular fluid through a lumbar puncture needle. This latter procedure should only be carried out when there is no intracranial hypertension; if performed in the presence of increased pressure, there is danger of medullary compression due to further herniation of a cerebellar pressure cone. Furthermore, encephalography under such circumstances is often use-

less as the ventricles frequently fail to fill with the gas.

Roentgenograms made after these procedures will demonstrate the size, position and shape of the cerebral ventricles and, in the case of encephalography, of the basal cisterns and the subarachnoid space. Tumors give rise to displacement, distortion or incomplete filling of the ventricular system and usually are readily diagnosed by this means. Only when the filling of the ventricles is incomplete does the interpretation of the ventriculograms become difficult. The ventricular abnormalities shown by this method are probably the most reliable single indication of brain tumor. It is true that occasionally a brain tumor may exist in the presence of an apparently normal ventricular system, but this is uncommon when ventricular filling is complete.

Air studies of the ventricular system are not necessary in every case. The clinical diagnosis corroborated by electroencephalographic phenomena or abnormalities in the regular roentgenograms of the skull were sufficient in fifty-five of the last hundred cases of brain tumor, ventriculography or encephalography being performed in 45 per cent. of the cases. In the earlier series, air studies were only made in 20 per cent. of the cases. The marked increase in the number of air studies is largely due to the fact that the cases are being seen much earlier than a

few years ago — so early, in fact, that it is impossible to be certain by clinical methods whether one is dealing with an inflammatory, degenerative, or neoplastic condition of the brain. As mentioned previously, the lowered incidence of papilledema is another indication that these cases are being seen earlier, before intracranial hypertension develops and before localizing signs are definite.

Arteriography. Although Moniz⁸ suggested the injection of sodium iodide into the carotid artery for the visualization of the cerebral circulation more than ten years ago, the severe complications resulting prevented its general use. Sub-

ized remains for future research to decide. The method is particularly useful with blood-vessel tumors and aneurysms.

DISCUSSION

In this brief review of the clinical, electroencephalographic and roentgenological manifestations of brain tumors, the manifold ways in which neoplasms arising within the intracranial cavity present themselves have been indicated. Early in their course many brain tumors initiate excitatory phenomena, such as convulsions, and produce little evidence of other dysfunction of nervous tissue. It is at this time that their

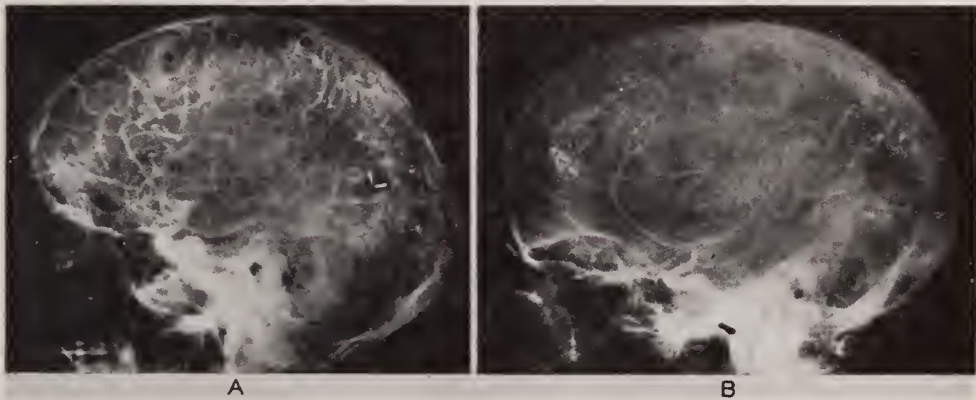


Figure 3.

Figure 3. Cerebral arteriograms:

- A. Normal.
- B. Patient with a large left frontal lobe cyst (probably glioblastomatous). Note the posterior displacement of the frontal lobe.

sequently he introduced the use of thorotrast for injection for this purpose and it has been found to be unattended by serious complications. As a result, cerebral arteriography is slowly gaining popularity although the possible late effect of the thorium on the liver, spleen, and kidneys has impeded the universal acceptance of this procedure.

It does enable a visualization of the tumor by demonstrating the abnormal vessels within the tumor, and the displacement of the normal cerebral vessels. There is some evidence to suggest that the arteriographic pattern of the different types of brain tumors are more or less characteristic, and the hope has been expressed that it might be possible to diagnose malignant tumors of the cerebral hemisphere by this method and thus eliminate some of the frequently futile craniotomies. Whether these hopes will be real-

ized remains for future research to decide. The method is particularly useful with blood-vessel tumors and aneurysms.

ment of the sylvian vessels and the avascular area just anterior to these vessels in the inferior frontal region. The tangled vessels in the anterior part of the frontal lobe probably are within the tumor.

diagnosis is so difficult. Later, when the impairment of nervous function is more prominent, and the neoplasm has increased the bulk of the intracranial contents sufficiently to cause hypertension and choked discs, the diagnosis becomes easier. This is evidenced by the fact that of those cases having choked discs only 38 per cent. required air studies whereas in 54 per cent. of the cases without papilledema, ventriculography or encephalography was necessary. In this latter group of cases in which the evidence of nervous dysfunction is slight, it is essential to eliminate other possible etiological factors, for in most instances vascular lesions, inflammations and degenerations could conceivably give rise to the same clinical picture. Yet it is not desirous to submit all patients suffering from vascular insults, inflammations of the nervous system and degenerations to air encephalography, for the

latter requires hospitalization, gives an annoying headache for several days and it not without danger. And in most instances this is unnecessary since by a carefully elicited history, detailed neurological examination and the examination of regular roentgenograms of the skull the majority of such cases can be correctly diagnosed. If a doubt as to the proper diagnosis still exists, electroencephalography — a harmless and simple procedure — frequently will suggest the etiological factor. If uncertainty persists, repeated complete examinations at month or six weeks intervals may dispel the doubt, for the progress and course of most diseases of the nervous system is characteristic. For the rare case, which has not disclosed its identity by this time, lumbar puncture and air encephalography may be necessary. By this means, with as little discomfort to the patient as possible, it becomes possible to make an early correct diagnosis of a slight nervous dysfunction which may be the initial evidence of a brain tumor.

SUMMARY

The only cardinal symptom of a brain tumor is a non-febrile, steadily increasing alternation of nervous function. But not all cerebral neoplasms progress in this manner — some are ushered in by sudden and startling nervous phenomena. Commonly headache, vomiting, convulsions, failing vision, progressive paralysis, staggering gait, are the initial manifestations of a brain tumor. A careful neurological examination will usually reveal some evidence of dysfunction of the nervous system. When the tumor becomes large enough to cause intracranial hypertension either from blockage of the spinal fluid pathways or from its mass, papilledema usually develops and localizing signs are more common. The spinal fluid rarely gives valuable evidence of tumor but examination of it is useful in eliminating other possible etiological factors. Electroencephalographic studies are extremely valuable and may be made without inconvenience to the patient. Roentgenograms of the skull frequently show evidence of a tumor. Encephalography and ventriculography are valuable adjuncts but are only necessary when clinical and simpler technical diagnostic aids have been exhausted.

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SPONTANEOUS HEMORRHAGE INTO THE SHEATH OF THE RECTUS ABDOMINIS MUSCLE

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D. A. BENNETT, M.D.

CANTON

Spontaneous hemorrhage into the rectus abdominis muscle is difficult to diagnose and a careful review of medical writings reveals that in very few instances has the correct diagnosis been made before operation. As a rule, it is impossible to distinguish it from other abdominal conditions. A review of the literature indicates that the true condition is usually overlooked, and most of these patients have been subjected to laparotomy with the mistaken diagnosis of some acute intra-abdominal condition. These diagnoses have included appendicitis, a tumor, ectopic gestation, an incarcerated hernia, mesenteric thrombosis, intussusception, volvulus, ventral hernia, gall-bladder disease, or fibroid tumor of the uterus. It is obvious, therefore, that recognition of the symptoms indicating spontaneous hemorrhage into the rectus muscle is extremely important when considering the differential diagnosis of abdominal pathology.

Furthermore, while spontaneous hemorrhage into the rectus muscle is far from common, it should not be regarded as of exceedingly rare occurrence. In 1882, Maydel reviewed all medical literature from 1809 to 1880 and collected 14 cases that occurred before 1880. It is his opinion that Hippocrates and Galen accurately described the condition. Wohlgemuth found 127 cases reported up to 1923, 79 of which were below the navel and 18 below the semilunar fold of Douglas. No doubt many cases have occurred

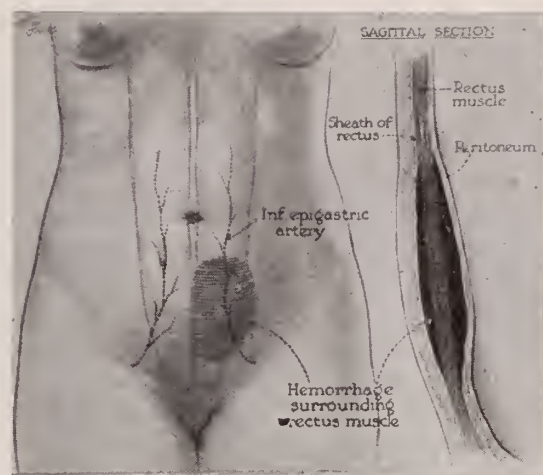
that have never been reported.

Etiology — The most casual study of this subject makes it clear that there is no single specific cause for such hemorrhages. It appears that many conditions, which are the result of internal as well as external influences, act as contributing factors in producing spontaneous bleeding into the muscle following rupture of the deep epigastric artery. Perhaps one of the most important causes is degeneration of blood vessels. While cases are occasionally found in young and healthy persons, in the great majority of instances, the individuals affected have reached or passed middle life. Almost all cases present unmistakable evidence of sclerosis, vascular degeneration, or hypertension.

Some writers attribute the condition to a pendulous abdomen, constant traction upon blood vessels resulting in abnormal changes in the vessel walls. These are unable to withstand the added stress when the muscle itself suddenly contracts or is put to the test by internal pressure as in coughing, sneezing, or, during labor. Other probable causes which may be considered, either with or without a pendulous abdomen, are trauma; a low capillary resistance and a prolonged bleeding time, as proposed by Norgaard; or a chronic productive myositis associated with syphilis, localized arteritis, focal degeneration of muscles and vessels following infections, aneurysmal dilatation, calcification and atheroma of the inferior epigastric arteries that have been included in an article by Giardina.

Numerous cases have been described as occurring during pregnancy, especially in multiparous women; during parturition; and in the immediate postnatal period. Pregnancy is always associated with regeneration and degeneration of muscle fibers — the evolution and involution of muscle tissue. Maxwell has collected 12 spontaneous cases occurring during pregnancy, and 46 attributed to other etiological factors, in not one of which was a correct diagnosis made before operation.

It is also apparent that infection plays an important role in the causation of these hemorrhages into the abdominal parietes, and influenza is the principle infective disease associated with it. The productive factor may be explosive coughing spells and sudden outbursts of sneezing in a disease associated with muscular inanition. In the British Medical Journal, Lieutenant



Colonel Cole gave his postmortem findings in the influenza epidemic at Bramshott in 1918 as follows: "Abscesses were found in some muscles and marked degeneration was repeatedly noted in the rectus abdominis. The muscle looked grey, cooked, and readily flaked three hours after death. Often there was marked hemorrhage, as much as two ounces, into the sheath of the rectus. The muscles were frequently found spontaneously ruptured, as cleanly as though cut through with a knife. The hemorrhage was sometimes present throughout the length of the sheath, though usually only in the lower quarter." Chaliar and Vallery describe a case in which there was an infected hematoma of the rectus muscle following typhoid fever and cultures revealed the presence of *staphylococcus aureus hemolyticus*. Others have found a number of cases of infected hematoma but have not given the types of infecting organisms.

Here and there throughout the world authors have described their cases together with many and varied causes, such as the sudden muscular effort connected with some phases of military training which resulted in severe jolting associated with sudden contraction of muscles; the sudden and unaccustomed strain of the muscle in those who try to deceive themselves by crowding all their exercise into one or two days during each month; kicks and blows on the abdomen; a misstep; lifting; strains attendant upon certain forms of manual labor; a hemorrhagic diathesis, in which a study of the blood showed a complete absence of ascorbic acid; metastatic diseases; alcoholism; and changes which accompany senility. Others have reported cases associated with typhoid and typhus fevers, tetanus,

tuberculosis, degeneration of blood vessels, muscular atrophy, and blood dyscrasias. Still others have seen cases for which no accountable reason can be given. Patients have become afflicted while riding in automobiles, while sitting quietly at desks, and while lying in bed.

Symptoms — In nearly all cases the patients have pain. As a rule it is severe and sudden, and situated to the right or left of the midline, and about at the level of the umbilicus. However, a number of cases have been reported in which the patient complained of more or less soreness that continued for several days prior to the attack.

When the hemorrhage is large the pain is usually severe, and the hematoma may be extremely sensitive to the touch. Nausea and vomiting are of frequent occurrence, and there may be some degree of prostration. The pulse may be accelerated, a slight fever is met with occasionally, and in some cases pallor of the skin and sweating indicate approaching collapse.

The contents vary in size from approximately 64 cc. to 2000 cc. The mass does not change its position, and, if the patient is asked to sit up a little, the enlargement can be felt easily but cannot be moved to either side of the abdominal wall. Another important sign is ecchymosis, which is confined to the area occupied by the extravasated blood. An important sign mentioned by Payne as almost pathognomonic of a lesion in the rectus sheath in the presence of these symptoms is absence of rigidity and tenderness in the abdominal wall adjacent to the tumor, "in contradistinction to what would be expected if there were an intra-abdominal lesion present."

Most of the hemorrhages are unilateral and below the level of the umbilicus. Inasmuch as the epigastric vessels occupy the dorsal surface of the rectus muscle, the greatest amount of bleeding occurs between the muscle and the posterior sheath above the fold of Douglas and between the muscle and the peritoneum below the fold. Numerous cases have been described in which the entire muscle from above the navel to the symphysis pubis has been badly torn by the extravasated blood. In some cases part of the muscle sloughed off in fragments. In others only single strands of muscle were torn.

Finally, the surgeon must not forget that, as a rule, the intensity of clinical manifestations

varies with the severity of the hemorrhage. In spite of the absence of rigidity suggested by Payne, a few cases have been reported where rigidity was present and where it was a deciding factor in the diagnosis of an intra-abdominal, inflammatory lesion. This is quite logical when we consider that the location of the hematoma is anterior to the peritoneum and in contact with it. The blood anterior to the peritoneum may produce just as much irritation as when it is posterior to it (as in ectopic pregnancy) and the symptoms in some respects may be quite similar.

CASE REPORT

Mrs. P. W., aged 61, Para eight, entered the Graham Hospital on February 21, 1939, with the preoperative diagnosis of a strangulated left inguinal hernia. Her past history, which may have had some bearing on the present condition, was as follows: In 1934 she had been admitted to the hospital in a thyroid crisis with a decompensated heart. After prolonged preparation, a large goiter, partly retrotracheal, was removed under local anesthesia. During this sickness she lost 84 pounds, which was regained subsequently. In 1938 she was again admitted, with a complete procidentia, which was corrected by a vaginal hysterectomy. Recovery was uneventful. Late in 1938 she had exacerbations of an old hypertrophic arthritis, which compelled her to be very inactive physically and she gained weight up to about 230 pounds.

About a week before her last hospital admission she developed an acute bronchitis and had frequent paroxysms of coughing. Because of her flabby musculature due to obesity and previous illness, these paroxysms caused very much discomfort and abdominal soreness.

On the morning of February 21, 1939, after one of the hard coughing spells, she had a severe soreness in the left lower quadrant, followed shortly by a painful swelling. She was seen by a physician, who though she had developed a hernia and who advised cold applications and rest in the hope that it would return to the abdomen. Her physician saw her again that evening and found the mass larger, irreducible, and more painful than ever, so he sent her to the hospital with the diagnosis of a strangulated or incarcerated left inguinal hernia.

Upon examination at the time of admission, the patient was noted to be quite obese, weighing 212 pounds. She complained of pain in the

lower left portion of the abdomen, which seemed to be aggravated by a severe cough. There had been vomiting on two occasions that afternoon, but no nausea at the time of examination. Her temperature was 100.8°, pulse 88, blood pressure 186/92, hemoglobin 13 grams, red blood count 3,800,000, white blood count 12,250, differential normal, and heart normal. Coarse rales were evident in the lungs. The urinalysis was normal.

Abdominal examination revealed a very large full abdomen with a swelling in the left lower quadrant. This had the appearance and sensation upon palpation of a large incarcerated hernia. The mass was full, rather tense, and so tender that only light palpation was practicable. The surface area was about 21 x 18 cm. with its lower border just above the symphysis pubis.

Because there was no nausea or vomiting at this time, and on account of the severe cough, it was thought best to wait until the following morning before attempting any surgery.

The patient rested quite well that night aside from paroxysms of coughing, and the next morning she had a normal bowel movement. Aside from the tender mass, there were no other abdominal findings, and her condition seemed to be improved. It was then decided to treat the respiratory infection with rest and medication until she became a more suitable risk, and to keep her under close observation in the meantime, in case symptoms suggesting intestinal obstruction arose. No such symptoms occurred and the cough improved readily, but the mass did not change in size although the tenderness did diminish somewhat. No discoloration of the skin was apparent at any time. Her temperature varied from 99.8° to 101.6°.

On the morning of February 27, 1939, six days after admission, the patient's cough had improved to such an extent that exploration of the mass seemed to be justified. Symptoms indicated no intra-abdominal pathology, and there was no sign of obstruction, so an incarcerated hernia seemed the most probable diagnosis. Under ethylene anesthesia an incision was made along the outer border of the left rectus. When the outer sheath was opened, a large hematoma was evacuated. It contained about 250 cc. of clotted blood and when this was removed the rectus muscle was found to be damaged and friable as from pressure necrosis, fully half of

the muscle having been destroyed. The hematoma was explored, and the bleeding was found to have come from a large branch of the deep epigastric artery. This was ligated and the anterior rectus sheath was repaired by imbricating it with interrupted ribbon gut.

The patient made an uneventful recovery and was discharged from the hospital on March 9, 1939, with the wound healed and in good condition. When last seen, two months later, she had no symptoms and the abdominal scar was normal.

SUMMARY

1. A case of hemorrhage into the sheath of the left rectus abdominis muscle is reported.

2. Many abnormal bodily conditions have been contributing factors in producing spontaneous hemorrhage into the sheath of the muscle. There is no specific etiologic cause for it.

3. Paroxysms of severe coughing appear to be one of the principle etiological factors.

4. Changes which accompany the middle period of life and thereafter, serve as contributing causes in producing this condition.

5. In comparatively few instances has a correct diagnosis been made.

6. Spontaneous rupture into the rectus abdominis muscle should not be regarded as being of rare occurrence.

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Says Nature to Physic what pity that we
Who ought to be friends should so seldom agree.
With medical legions my humours they chase,
Till pallid resentment appears on my face;
Aperients, astringents, narcotics, combine
To thwart and oppose me in every design;
And by volleys of pills discharg'd at my head
My strength is exhausted, my energy dead.
But Physic should know I am not to be taught
By severe flagellation to do as I ought;
That my faults may be mended by gentle correction
To which science and talents must give the direction.
Nature and Physic, *Professional Anecdotes*, 1825
Rep. in *Can. Med. Assn. Jour.*, July, 1939.

BONE CARCINOMATOSIS SIMULATING PERNICIOUS ANEMIA

(A Case Report)

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While one of the most common malignancies, yet carcinoma of the stomach rarely metastasizes to the bone; the figures vary between 2 and 5 percent. (Symmers,¹ Warwick,² Kerr & Berger³). Its frequency however should not preclude its premortem diagnosis. Metastases to the bone often causes stimulation of the marrow which produces a severe anemia easily misinterpreted as pernicious anemia. (Ellerman⁴). Laurence and Mahoney⁵ report one such case of anemia in which they found thrombopenie purpura with marked decrease in platelets, explained on the invasion of the marrow by large numbers of tumor cells. Mallory⁶ reports a polypoid car-

The following case history is quite typical of the marked blood changes simulating pernicious anemia together with other factors which speak against it.

This sixty year old white female complained of weakness and pains in her legs of six month's duration. The previous history was irrelevant except that she had been on liver treatment for pernicious anemia. On physical examination the patient did not appear acutely ill but was very pale and very weak. The skin was rather sallow, the mucous membranes pale; the tongue was smooth, the heart and lungs were negative and no masses were felt in the abdomen. The temperature, pulse, respirations and blood pressure were all within normal limits. The red cells numbered 1,010,000, the white cells 10,850, the hemaglobin estimated at 18% (Sahli) giving a color index of 1.1. On differential count there were 66%

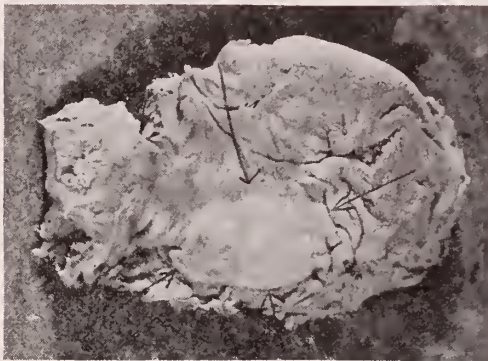


Figure 1: Non-ulcerating elevated rounded carcinoma of stomach.

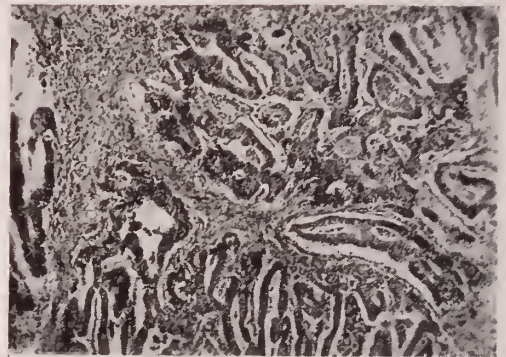


Figure 2: Typical adeno-carcinoma of stomach.

cinoma of the stomach in a patient with pernicious anemia and suggests that pernicious anemia patients should be studied for carcinoma. The clinical impression too may be compatible with a primary anemia. Boyd⁷ in differentiating pernicious from other forms of anemia states that one case was extremely suggestive of pernicious anemia even to the extent of presenting peripheral sensory disturbances. Autopsy revealed a carcinoma of the stomach. If the carcinoma is in a so-called silent area of the stomach we can readily appreciate how gastric symptoms will be lacking while the picture of pernicious anemia will stand out prominently. There are however certain factors, as stressed by Jaffe,⁸ which speak against this diagnosis and should make one suspicious of bone metastases. If one is alive to the possibility of its presence the diagnosis can more often be made premortem.

polymorphonuclears, 26% lymphocytes, 5% myelocytes and 3% eosinophiles; while counting these 100 white cells, 16 normablasts were encountered. There was moderate disproportion in the red cells with increasing numbers of macrocytes and moderate poikilocytosis. The urine was negative. The Ewald meal yielded no free HCL and 10% total acidity. The blood Wassermann was negative and the metabolic rate was plus two.

The most likely diagnosis was pernicious anemia. The patient was transfused and given liver subcutaneously as well as per mouth. The clinical response however was very poor; nor was there much change in the blood picture after two weeks of treatment. Because of the failure to respond to liver therapy the diagnosis of pernicious anemia was questioned and a low grade infection was considered. Before any more

could be done the patient took a rapid down-hill course and expired three weeks after liver therapy was begun.

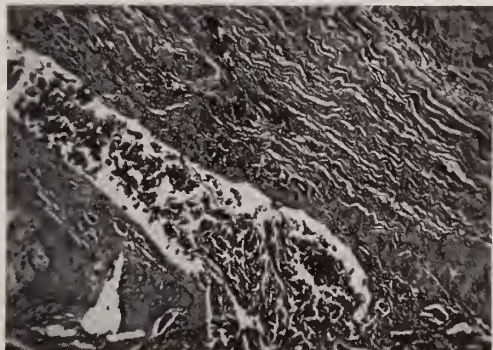


Figure 3: Tumor cells with no definite arrangement in bone marrow.

On post-mortem examination the essential findings were in the stomach and bone marrow. The stomach was of normal size but along the greater curvature, in about mid-portion, was found an elevated, rounded tumor measuring $4\frac{1}{2}$ cm. in diameter. It was firm in consistency and the mucosa covering it was firmly adherent but intact; there was no evidence of ulceration. The peri-gastric and peri-pancreatic lymph nodes were large, relatively soft and purple gray in color. Microscopic examination of the tumor and adjacent lymph glands revealed the typical picture of an adeno-carcinoma. The bone marrow was bright red in color interspersed with small, purple gray areas. On microscopic examination large groups of tumor cells, with no definite arrangement, were found invading the

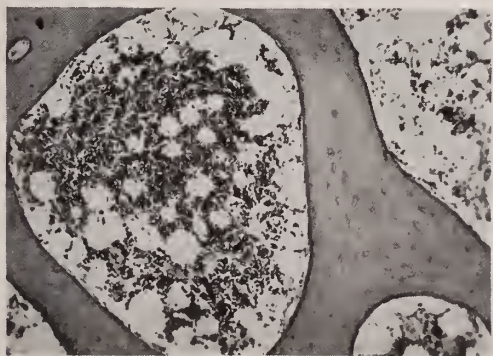


Figure 4: Marrow tissue rich in myelocytic cells. (low power)

bone. In some areas the strands of marrow tissue were rich in myelocytic cells.

The spleen was enlarged to about twice the

normal size, weighed 308 grams, was quite firm and the cut surface was bright purple red. Microscopically the splenic pulp showed extensive myeloid metaplasia; many myeloblasts, myelocytes, leucocytes and nucleated red cells. The liver was reddish brown, weighed 1910 grams, and the cut surface presented obscured structural markings. The microscopic section showed many immature blood cells, especially of the myeloid series within the portal capillaries. The remaining organs presented nothing contributory.

COMMENT

The clinical interpretation of this case was confusing. The symptomless primary malignancy of the stomach was not considered because: 1 — located in the greater curvature, without a tumor mass presenting in the lumen, there was no anatomical interference with the emptying of the stomach. 2 — without erosion

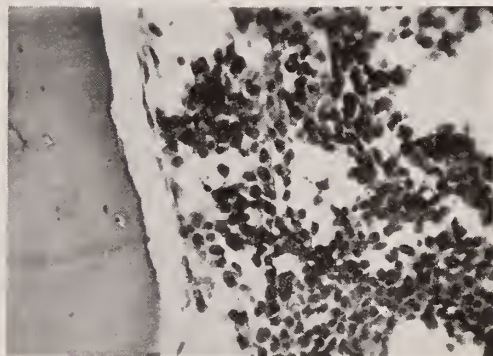


Figure 5: Marrow tissue rich in myelocytic cells. (high power)

of the mucous membrane there was no evidence of blood or irritation of the mucosa to produce gastric symptoms. 3 — even if an X-ray examination had been made it might have been overlooked because of its anatomical arrangement and its location in a so-called silent area.

The blood picture suggesting a primary anemia has often been noted in metastatic carcinoma of the bone. These blood changes consist usually of large numbers of immature cells of both the granular and erythrocyte series in the peripheral blood together with a high color index. The severe anemia of one million red cells and 18% hemoglobin in a very pale appearing individual, not acutely ill, was compatible with the diag-

nosis of pernicious anemia. The large number of myelocytes and normablasts are however not typical of primary anemia and when present should suggest the possibility of bone metastases. In this case there were 5% myelocytes and while counting 100 white cells 16 normablasts were found. This fact, together with the history of previous liver therapy with no apparent benefit, should cause one to question the diagnosis of pernicious anemia and suspect carcinomatosis of the bone marrow. After the patient failed to respond to the liver therapy the diagnosis was finally questioned and this failure to improve on liver confirmed the hematological findings.

CONCLUSION

While certain malignant neoplasms have the tendency to metastasize diffusely to the bone, this type of metastases is relatively rare in carcinoma of the stomach. The diffuse permeation of the bone marrow by the tumor may provoke a severe anemia which closely resembles pernicious anemia. Opposed to such a diagnosis is the occurrence of a large number of immature blood cells (especially normablasts) in the peripheral blood. Failure to respond to liver therapy, together with such hematological findings, should prompt the diagnosis of bone carcinomatosis. In the case presented, compensatory blood formation appeared in the liver and spleen because of the extensive involvement of the bone marrow by the tumor tissue.

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CLINICAL ASPECTS OF VITAMIN DEFICIENCIES IN OPHTHALMOLOGY

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I may owe the privilege of addressing you on the clinical aspects of vitamin deficiencies in ophthalmology to the fact that for six years I was connected with the Peiping Union Medical College in Peking, China, where I had ample opportunities to study practically all types of vitamin deficiency in very severe forms. The tremendous size of the vitamin problem in China may make me unduly underrate the significance of vitamin deficiencies in this country. If in the following I should make this mistake, I wish to apologize for it beforehand.

The unbiased observer of the situation as it prevails in the United States with regard to the use of vitamins is bound to recognize the effect of two, what I would call distorting, factors, namely the effect of intensive propaganda on the part of the vitamin manufacturers directed at lay people as well as at doctors, and also the injudicious enthusiasm with which doctors as well as lay people welcome any new therapeutic principle. Let us try to reduce to a minimum the influences of these two factors in our discussion today.

The wealth of published evidence, clinical observations, theories, and wishful thinking which concern practical clinical aspects of vitamin deficiencies in ophthalmology may be grouped into three categories in the form of answers to the following three questions:

1. Does the ophthalmologist in private or clinical practice in the United States see cases of frank avitaminosis or hypovitaminosis of the particular vitamin?
2. Does the particular avitaminosis produce ocular manifestations by the recognition of which the ophthalmologist can contribute to the diagnosis of vitamin deficiency?
3. Are there ocular conditions which are beneficially influenced by administration of amounts of vitamin in excess of the normal requirements (indications for supplementary vitamin administration)?

From the Illinois Charitable Eye and Ear Infirmary, Chicago, Ill.

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VITAMIN A

Incidence of avitaminosis and hypovitaminosis. Frank avitaminosis A is very rarely seen by the ophthalmologist practicing in the U.S.A. In general, the intake of vitamin A of the population of the U.S.A. is ample so that deficiencies are likely to occur only in severe prolonged disturbances of absorption from the gastrointestinal tract, in severe liver disorders in which the conversion of carotene into vitamin A is impaired, in conditions of increased consumption (hyperthyroidism) or of increased expenditure (pregnancy, lactation) of vitamin A. Even in the pediatric wards of the hospitals for the indigent, keratomalacia has become extremely rare.

The incidence of hypovitaminosis A among the population of the U.S.A. is a controversial subject. There is ample physiological and clinical evidence to the effect that the optimal intake of vitamin A is very much greater than the minimum which barely prevents the occurrence of definite deficiency symptoms. Especially in the children of the poorer classes who receive only limited amounts of milk, cream, butter and green vegetables hypovitaminosis A is likely to be present especially if there is a disorder of absorption which aggravates the condition. In eye clinics hypovitaminosis A has therefore to be reckoned with and probably is present in a considerable percentage of children with phlyctenular disease.

According to a number of reports from European countries¹, the course of inflammatory corneal diseases on the order of phlyctenular disease, herpes simplex, punctate superficial keratitis in individuals with hypovitaminosis A is influenced beneficially by correction of the latter. This is understandable since a certain vitamin A content is apparently necessary for the functional integrity of the epithelial cells and therefore also for their resistance to noxious agents of all kinds. In chronic or recurrent superficial inflammatory diseases of the cornea and conjunctiva it would therefore seem good practice to keep hypovitaminosis A in mind as a possible debilitating or perhaps predisposing factor.

Ocular manifestations of avitaminosis A. An ocular condition supposedly related to hypovitaminosis A is the form of asthenopia asso-

ciated with photophobia which occurs in people exposed to excessive amounts of sunlight. Cordes and Harrington² reported this syndrom to occur fairly frequently in California and to respond well to daily doses of 30,000 units of vitamin A or carotene. In some of these patients a hypovitaminosis A may have been present, since there was a complaint of "night blindness" in 22% and a history of intentional dietary restrictions in a still higher percentage. This form of asthenopia may be characteristic of sunny climates. Here in the Middle West it appears to be rare. It may, however, occur in certain occupations such as, for instance, the personnel of gasoline stations and should then be treated according to the recommendations of Cordes and Harrington.

From the very characteristic and conspicuous ocular manifestations of avitaminosis A the names "antixerophthalmic vitamin" or "xerophthol" have been derived. Objectively, a diffuse mild xerosis of the conjunctival and corneal epithelium, with or without circumscribed accentuation in the form of Bitot's spots, but always associated with reduced production of tears is the earliest and very characteristic ocular change³. In North China the ocular manifestations are usually preceded by skin changes in the form of follicular hyperkeratosis⁴.

Because of the fact that vitamin A is a component of the visual purple the faculty of dark adaptation is intimately related to the vitamin A metabolism of the body. On the basis of adaptometric studies the diagnosis of hypovitaminosis A has been made by pediatricians and internists in this country. The very exact work on the dark adaptation of normal individuals who for varying periods reduced their daily vitamin A intake to less than 300 units which was undertaken in several American institutions^{5, 6, 7} during the last two years has brought out clearly the multiplicity of factors involved in adaptometric work. The test is entirely subjective and requires a much keener power of observation than is necessary for perimetric work. It seems doubtful whether all the individuals who were tested by internists and pediatricians possessed sufficient power of observation to make their statements — some of them were children — appear reliable. Furthermore, in order to obtain reproducible results a fairly complicated apparatus allowing accurate control of fixation and of other factors is absolutely necessary.

To me it seems rather questionable whether the ophthalmologist by means of a crude adaptometer will be able to definitely draw a borderline between normal and slightly impaired dark adaptation in the average patient. Doubtlessly the severer degrees of night blindness as they occur in marked vitamin A deficiency or in retinotapetal degeneration can be diagnosed very readily with very simple adaptometers on the order of the one designed by Birch-Hirschfeld, but unless the conditions are really ideal for accurate adaptometry the diagnosis of mild hypovitaminosis should in my opinion only be made if the results of the dark adaptation test are corroborated by other findings, like hyperkeratosis of the skin or a low vitamin A content of the serum.

There is evidence to the effect that the milder degrees of night blindness are associated with a contraction of the visual field for yellow only⁸. If the ophthalmologist has at his disposal a perimeter which permits perimetry under standardized and accurately reproducible conditions, the determination of the isopter for a yellow target of 3-5/333 may be a valuable substitute for adaptometric studies.

Indications for supplementary vitamin administration. The ophthalmological literature abounds in reports on ocular conditions which have been beneficially influenced by oral or local administration of vitamin A in patients without definite signs of avitaminosis or hypovitaminosis A. This practice has by some authors been criticized as "indiscriminate" use of vitamins. In principle, however, no serious objection can be raised to such a procedure. The doses of vitamin A used were certainly harmless so that their therapeutic effect could only have been nil or beneficial.

This brings us to the much debated subject of the rationale of local use of vitamin A. Its introduction into the treatment of wounds by Löhr in 1937 was at first greeted very enthusiastically. In a recent resume on "The Pharmacology and Therapeutics of Vitamin A" Clausen⁹ sums up the situation by saying that "the experimental work done throws doubt on any specific action of the vitamins contained in the preparations applied locally." In order to ascertain the value of such therapy applied to the eye de Roethth¹⁰ studied the effect of local application of the vitamin on experimental kerato-

malacia in rats. His conclusions were: "Oils containing vitamin A have a definite systemic, not a local action when applied to the eye. It is not known, however, whether it is resorbed by the surface of the eye or whether it reaches the stomach through the nasal duct." In normal rats in whom equal portions of corneal epithelium were scraped off "there was no difference in the time necessary for epithelization when the right eyes were treated with cod liver oil and the left eyes with liquid petrolatum. These experiments do not confirm the idea that vitamin A acts locally to promote epithelization." Does this mean that the local application of vitamin A preparations in inflammatory or traumatic lesions involving the anterior surface of the eye is altogether pointless? That conclusion would in my opinion go a little too far.

From the purely clinical point of view the experiences with local application of vitamin A in various inflammatory, traumatic or degenerative diseases of the conjunctiva and cornea have been, to say the least, encouraging. The excellent results reported by Russian authors¹¹ may be partly due to a prevalence of a marked hypovitaminosis A among their patients. This condition did probably not apply to the series of cases in Great Britain, Germany, Italy and Hungary who were subjected to local vitamin A treatment. Stevenson¹² found locally applied cod liver oil to possess "an undoubted and rather surprising efficacy as a healing agent." De Grosz¹³ sums up his experiences by saying that local application of vitamin A "possesses a large field in ocular therapeutics; it represents an outstanding therapeutic agent, especially for injuries and trophic conditions of the cornea.

My feeling in the matter is that the local application of vitamin A has proved to be a very effective way of administering the vitamin. In the severe avitaminoses of Chinese children in which the absorption from the intestines was often markedly impaired by a chronic gastroenteritis, I found the local application of cod liver oil ointments to be most beneficial and a true "sight-saver" when we had run out of vitamin A preparations suitable for intramuscular injections. In individuals with ample vitamin A intake in their natural food the local application of vitamin A ointments may further increase the vitamin content of the ocular tissues which by a local disease may have become de-

ficient and thus make them independent of the vitamin supply through the blood stream. The possibility thus still remains that in severe burns or necrotizing inflammatory diseases the local application of vitamin A is of some value.

VITAMIN B₁

Incidence of avitaminosis and hypovitaminosis. The picture of the marked avitaminosis B₁ with or without signs of deficiency of the B₂ complex, is seen fairly commonly by the ophthalmologist in the form of the so-called toxic amblyopia due to alcoholism. While a direct toxic effect of the alcohol upon the optic nerve probably does play a part in these cases, the B₁ deficiency which is the result of a reduced intake plus a very much impaired absorption due to the chronic atrophic gastroenteritis characteristic of alcoholism, is the most important factor in the pathogenesis of this disease. The ophthalmologist is usually the first to see these patients and is thus enabled to materially alter the course of the ocular as well as the systemic disease.

Since it is a generally recognized fact that in the U.S.A., Western and Central Europe the B₁ intake of the large majority of the population just about covers the ordinary metabolic requirements hypovitaminosis B₁ is bound to occur in any clinical material.

Ocular manifestations. The ophthalmologist can hardly make a contribution toward the diagnosis of this hypovitaminosis since demonstrable optic nerve lesions apparently occur only in deficiencies of great severity and long duration. In the pure form of the deficiency which is known under the name of tropical or oriental dietary retrobulbar neuritis¹⁴ and which does not occur in the U.S.A. the main ocular symptom is a bilateral central scotoma and not the centrocoecal scotoma which is so characteristic of the B₁ deficiency associated with alcoholism. In the Philippines I have seen B₁ deficiency during pregnancy or shortly after delivery manifest itself by an acute neuritis of the ophthalmic branch of the fifth nerve, leading to an acute and very painful keratitis.

Indications for supplementary vitamin administration. The assumption that the metabolic requirements of traumatized or inflamed nerve tissue are greater than those of normal

nerve tissue has led to the use of vitamin B₁ in the treatment of various inflammatory, metabolic and traumatic diseases of the nervous system. The neurologist would be the proper authority to report to you on the results of this treatment, but even the ophthalmologist is bound to recognize the very beneficial effect of large doses of vitamin B₁ in certain neurological diseases. The best example in ophthalmology is herpes zoster in which I have seen it to dramatically influence the pain. To what extent the vitamin therapy tends to reduce the damage to ocular tissues caused by the zoster neuritis is difficult to say since so much of this process takes place in a part of the eye not directly accessible to clinical examination. It is my feeling that the new and apparently very successful treatment of herpes zoster with parenteral injections of diphtheria antitoxin (5000 units) should not supplant the vitamin therapy but rather be combined with the latter.

As far as the ocular manifestations are concerned the various avitaminoses caused by lack of one or several members of the B group present themselves either under the picture of the B₁ deficiency which we have just discussed or under the picture of ariboflavinosis which, from the standpoint of practical ophthalmology in this country, is at the moment probably the most important vitamin deficiency.

RIBOFLAVIN

(vitamin B₂ in the strict sense or vitamin G)

Incidence of avitaminosis and hypovitaminosis. Ariboflavinosis, characterized by cheilosis, glossitis, and seborrhea, is a common disease in all districts of the U.S.A. where pellagra is prevalent. According to Sydenstricker and associates¹⁵ it possibly is "the most prevalent, apparently uncomplicated avitaminosis; it is possible also that it is more easily recognized than others on account of the specific lesions of the eye which occur early in the period of deficiency."

Ocular manifestations. To the ophthalmologist ariboflavinosis usually presents itself under a picture that until recently has been called acne rosacea, characterized by flushing, teleangiectasia, hypertrophy and pustules of the skin of the face associated by a chronic or recurrent keratoconjunctivitis of which excessive

superficial vascularization with corneal infiltrations and ulcers are the outstanding manifestations.¹⁶ The ophthalmologist is in a position to recognize the earliest stages of ariboflavinosis and thereby to make an important contribution to the early diagnosis of the disease. Observations on animals in which ariboflavinosis has been produced experimentally and in man make it certain that invasion of the cornea by new-formed vessels which are derived from the normal superficial limbic plexus is the earliest symptom of riboflavin deficiency^{17, 18}. To what extent this invasion can be diagnosed in its beginning depends somewhat upon the extent to which the anatomy of the limbic vessels has been altered by previous corneal diseases. Accurate knowledge of the slitlamp picture of the normal and diseased limbus thus becomes a necessary requisite for the early detection of ariboflavinosis. The vascular invasion is usually associated with slight congestion of the normal limbic vessels, photophobia and itching. Johnson¹⁸ describes the general pattern of the vascularization due to ariboflavinosis as resembling a large unleafed elm branch. Excellent diagrams of these vessels can be found in the article by Sydenstricker and associates¹⁵, who proposed the appropriate name of dietary keratitis for the disease heretofore called acne rosacea keratitis.

In the classical form of ocular ariboflavinosis dramatic improvements and cures have been obtained by administration of the lacking vitamin by mouth or parenteral injection. A necessary condition for the proper utilization of orally administered riboflavin is a fairly acid reaction of the stomach contents which, if one does not care to subject the patient to a gastric analysis, can be brought about conveniently by the administration of small amounts of dilute hydrochloric acid before the ingestion of the riboflavin.

Indications for supplementary vitamin administration. Since the principal action of riboflavin is to act as a catalyzer in the carbohydrate and amino-acid metabolism and since this action is of much greater significance in avascular than in vascular tissues, it is to be expected that riboflavin will prove beneficial in corneal diseases not due to a systemic ariboflavinosis. Up to this time no striking results in such diseases have been reported.

VITAMIN C

Incidence of avitaminosis and hypovitaminosis. Severe avitaminosis C is practically non-existent among the patients seen by the ophthalmologists practicing in the U.S.A. Using as criterion of hypovitaminosis C the amount of vitamin C necessary for saturation of the body one finds that most of the elderly individuals who are treated by ophthalmologists for senile cataract or glaucoma are in a state of hypovitaminosis C. Some authors¹⁹ state that this hypovitaminosis is more marked in cataract patients than in individuals of the same age but without cataracts, whereas other authors have failed to find such a difference. Ascorbic acid has been shown to play a very important part in the formation of intraocular fluid²⁰ and in the metabolism of the lens¹⁹. The discussion of these very interesting relationships would probably be considered a transgression by the program committee and is therefore omitted. Of the practical applications of this work I would like to mention the use of ascorbic acid in large doses by mouth or parenterally prior to intraocular operations upon elderly individuals. The rationale of this therapy is the interpretation of postoperative hemorrhages as manifestations of a hypovitaminosis C. Actually Urbanek and Albrecht²¹ and others have reported that postoperative hemorrhages into the anterior chamber do not occur in patients saturated with vitamin C by daily doses of 300 mg. ascorbic before and during the first week following the operation. Since the procedure is simple and free of any disadvantages it should be practiced as an additional safety measure before and after intraocular operations.

Large doses of vitamin C have been used extensively and with very divergent interpretations of its effect in the conservative treatment of senile cataract. My own feeling is that even by very close observation of cataract patients it is very difficult to recognize with certainty the effect of any conservative therapeutic procedure. The metabolism of the cataractous lens has been shown to be faulty and defective in so many respects that flooding of the eye with ascorbic acid alone can not be expected to change the course of senile cataract. I do not, however, want to imply that I consider the conservative

treatment of senile cataract as an absolutely hopeless enterprise. On the contrary, I feel that especially the study of vitamins in relation to lens metabolism has shed a great deal of light on the various metabolic requirements of the lens and has thus shown us what food substances, enzymes and catalyzers the lens requires for functional integrity. Only through such studies can one hope of ever being able to replenish the food stores of the cataractous lens and thus to rectify its metabolism.

Ocular manifestations. Avitaminosis or hypovitaminosis C does not produce any eye symptoms of practical diagnostic value.

Indications for supplementary vitamin administration. Vitamin C has proved to be of therapeutic value as a styptic in a number of diseases characterized by a tendency to capillary hemorrhages not related or due to hypovitaminosis C. "Vitamin C seems to tighten the capillary walls," says W. Stepp in his monograph on vitamins. After parenteral administration of large doses of vitamin C the blood platelet count is usually found to go up and the coagulation time shortened due to an activation of thrombin. On the basis of these facts one is tempted to try vitamin C for the symptomatic treatment of ocular conditions in which intraocular hemorrhages occur spontaneously, in addition to the application of all known measures directed against the etiology of the disease. I am thinking here of the tuberculous form of retinal periphlebitis²², without doubt one of the most unpleasant diseases from the standpoint of treatment since there always is the possibility of correlating a new hemorrhage with some therapeutic step taken immediately prior to the accident. From the few cases of this disease which I, in addition to very careful tuberculin treatment, have treated with vitamin C, I have received the impression that the latter was of definite value. Whether the course of diabetic retinitis is in any way influenced by vitamin C I am not able to say with certainty at this time. I have, at present, a number of patients under observation who in addition to a very careful diabetic regime are kept on large doses of vitamin C.

VITAMIN D

Incidence of avitaminosis and hypovitaminosis. The ophthalmologist practicing in the

U.S.A. rarely comes in contact with cases of avitaminosis D, rickets in children and osteomalacia in the adult. Even in pediatric wards of hospitals for the poor rickets has become an uncommon disease.

Ocular manifestations. The only ocular manifestation of avitaminosis D is the development of bilateral cataracts of the zonular type which, in rickets as well as in osteomalacia²³ is an expression of the profound and long-lasting disturbance of the calcium metabolism caused by vitamin D deficiency. The cataract is a late development and therefore of no practical diagnostic importance.

Indications for supplementary vitamin administration. A. A. Knapp²⁴ claims "that a disturbance in the vitamin D-calcium-phosphorus metabolism is concerned in the etiology of myopia. In the presence of a calcium imbalance, there may be a weakening of the fibrous tissue which may give rise to myopia. Once a condition of progressive myopia has been established treatment with the vitamin D complex is indicated. The myopic eyes that respond to this therapy may undergo an actual shrinkage of the globe." Although I have not had much faith in this concept I have carried out Dr. Knapp's therapeutic program in a number of youths with progressive myopia. There has been no statistically demonstrable difference in the amount of progression of myopia between these patients and controls who received no vitamin D in addition to their regular diet. In the absence of any more promising "treatment" of progressive myopia in adolescence the vitamin D therapy may deserve a trial.

VITAMIN K

Incidence of avitaminosis and hypovitaminosis. The human body receives its supply to vitamin K partly from the green leafy vegetables contained in food and partly through the action of the normal bacterial flora of the intestines which synthesize and store in their bodies large amounts of the vitamin. For its absorption from the intestines the presence of bile is absolutely necessary. Vitamin K deficiency therefore occurs in all forms of obstructive jaundice. Vitamin K is necessary for the formation of prothrombin in the liver; the main deficiency symptom is therefore delayed coagulation of the blood which constituted a serious problem to the

surgeon who had to perform major surgical operations on patients with obstructive surgery. The discovery of vitamin K and the availability of the market of very effective vitamin K preparations — with or without bile salts — has brought about a very dramatic change in the treatment of patients with obstructive jaundice.

Hypovitaminosis K which occasionally occurs in certain forms of mild gastroenteritis or colitis can be diagnosed by determining the prothrombin content of the blood, a fairly simple procedure which is carried out in any clinical laboratory. In patients who give a history of chronic digestive disturbances it may be wise to have the prothrombin content of the blood determined before any intraocular operation is performed.

Indications for supplementary vitamin administration. Whether or not the administration of vitamin K in excess of the normal requirements shortens the normal blood coagulation time is not definitely known. In patients with unexplained post-operative hemorrhages but normal coagulation time vitamin K has been used by a number of ophthalmologists with apparently beneficial results. Burch and Meade²⁵ have reported a favorable response to vitamin K therapy in a case of retinal hemorrhages of unknown cause.

SUMMARY

The vitamins A, B₁, riboflavin, C, D and K play important parts in the normal functioning of the ocular tissues. Avitaminoses are associated with characteristic ocular manifestations some of which occur at an early stage and are therefore of diagnostic significance. In a number of diseases the administration of vitamins in excess of the normal requirements has proved to be of great therapeutic value.

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CLINICAL ASPECTS OF VITAMIN DEFICIENCY IN THE EAR, NOSE AND THROAT LINDEN WALLNER, M.D., CHICAGO

The manifestations of true deficiency diseases are so rare in the ear, nose and throat that on first thought vitamins may not be considered important. Specialists are often criticized for a too narrow outlook. It is well to review the field of avitaminosis, to see if there are diseases ordinarily ascribed to other causes that may be due, at least in part, to insufficient vitamin intake.

VITAMIN A.

This has been called the anti-infective vitamin, a term given by Mellanby in 1926 because of the chronically infected noses and frequent upper respiratory infections he found in infants on A deficient diets. Widespread advertising has furthered this anti-infective idea among the public. Vitamin A preparations are given routinely to the personnel of large companies for the prevention of colds.

The experimental evidence is found in animals fed deficient diets and from clinical studies of its use on large control groups.

In an important study in 1925 Wolbach² and Howe fed rats Vitamin A deficient diets. The

² Presented before the Section on Eye, Ear, Nose and Throat, 101st Annual Meeting, Illinois State Medical Society, Chicago, May 20, 1941.

epithelium of the upper respiratory tract and sinuses underwent a metaplasia from the normal ciliated columnar to a keratinized, stratified squamous type, followed by infection. This has been verified^{3,4} by many other workers and all find animals on A deficient diets develop infections of the upper respiratory tract.

There have been numerous clinical^{5,6,7,8} studies of the effect of vitamin A and colds.

Some merely give a vitamin concentrate, and the number of colds was recorded, compared with the number the subject thought he had the year before. Others compare the results with a similar group as controls.

One of the best of these studies was by Jeghers⁹ on 162 medical students, 50 or 36% were found to have sub-normal light adaption and their calculated vitamin intake was $\frac{1}{2}$ of the others. The incidence of colds was about the same, though the duration was longer in the vitamin deficient group. Others¹⁰ gave an excess of vitamin A to groups already known to be receiving an adequate intake. There was no lowered incidence of colds but a suggested shortening of duration and lessened severity.

No systemic¹¹ lack of immunity or anti-body production has been demonstrated in vitamin A deficiencies.

The present status of vitamin A in the ear, nose and throat may be summarized:

1. Vitamin A is necessary to the health of the mucus membrane of the upper respiratory tract. When deficient, there may be lowered local resistance to bacterial infection.
2. The epithelial metaplasia in experimental animals is a late result, it is *not* seen in humans, with rare¹² exceptions. The stratified squamous epithelium in atrophic rhinitis has been compared to the metaplasia of animals. This disease has long been thought to have a dietary etiology. Its rarity, even in clinics today, suggests better feeding, especially of infants.
3. There is no special characteristic of infections in the ear, nose and throat that identify it as due to lack of vitamin A. Neither do we have a simple method of determining the presence of A deficiency. A calculation from the diet may help. Blood level determinations or dark adaptation tests are not practical for routine office or clinic use.

4. Insufficient intake of vitamin A may be one factor to be considered, along with allergy, infection, humidity and many others in persons subject to frequent colds.
5. The administration of vitamin A to persons already receiving an adequate intake in the diet does not lessen susceptibility to colds. It may shorten their duration or lessen their severity.
6. The term anti-infective vitamin is not justified.

VITAMIN B.

Including B₁ thiamin chloride, and other factors of the B complex.

One of the known changes in B deficiencies is the nerve degeneration, specifically de-mylenization. Possible applications that suggest themselves in otolaryngology are in diseases of the 8th nerve, in the cochlear division, deafness; and the vestibular portion, vertigo; as well as the many forms of neuralgia about the head.

Eighth Nerve. It has been shown that experimental animals (chicks, rats^{13,14}) on diets lacking in various factors of the B complex, undergo degeneration, demylenization of both the cochlear and vestibular nerve.

Selfridge has written extensively on both the experimental and clinical aspects of vitamin B complex deficiency as a factor in the cause of nerve deafness. He grants it is often a senile change, but feels that the degeneration of age is caused or accentuated by vitamin deficiency. He offers a large series of cases, with audiograms before and after treatment, showing definite, though not marked, improvement in hearing in many after administration of various factors of the B complex. There is nothing distinctive in the audiograms to indicate the cases as different from the usual primary nerve deafness. Other¹⁵ observers have reported similar studies with poorer results.

I have been interested in a series of nerve deafness cases treated by a colleague with vitamin B, in large doses with entirely negative results. There was no improvement of hearing in the cases of nerve deafness which I have treated with B₁.

It is difficult to believe that mild, sub-clinical avitaminosis is a real factor in nerve deafness,

when we remember defective hearing is not a symptom of the definite B deficiency diseases, beri-beri or pellagra. Tinnitus^{16, 17} and vertigo have been described in pellagra however.

The changes observed in animals in the vestibular nerve have suggested the use of B₁ and B complex in Menieres syndrome. Harris¹⁷ and Moore noted peculiar dietary habits in persons with Menieres disease. Large doses of thiamin were ineffective. Then they tried nicotinic acid with negative results. Used together, 250 milligrams of nicotinic acid and 20 milligrams of thiamin per day, 17 of 20 cases were entirely relieved, 3 improved. In 10 the tinnitus disappeared and was improved in the others. In 12 the hearing was improved.

Atkinson¹⁸ divides Menieres cases into those due to allergy and those due to vascular spasm. The latter are mostly in older individuals and respond to B₁ and nicotinic acid. He feels the improvement is due to a vaso-dilator action, rather than the correction of vitamin deficiency.

Cases of pain about the head, over the sinuses, nose, face and throat without apparent disease are frequent in oto-laryngology. These have been most difficult to handle, they are often labeled as "neurotics." The use¹⁹ of Thiamine Chloride has been a distinct advance and worth a trial before alcohol injections or surgery. Fifty milligrams of Thiamine Chloride subcutaneously daily for 10 days is an adequate trial. The relief may be due to correcting of a deficiency or some "non-specific" action of B₁ as some feel.¹⁹

The lesions in the mouth, tongue and pharynx in pellagra and those of the lips, cheilitis, in riboflavin deficiency should be mentioned.

To summarize B₁ and B complex in oto-laryngology:

1. There is no disease syndrome in the ear, nose, or throat characteristic of B deficiency.
2. Good results have been reported in its use in case of nerve deafness and Menieres disease. Its use empiracally in these cases may be justified.
3. Its use in the troublesome and baffling neuralgias about the sinuses, throat and head is justified. It is simple, easily given, relieves many of these that otherwise would need alcohol injections or more drastic surgery.

VITAMIN C.

Ascorbic or Cevitamic acid. The classic manifestations of a lack of vitamin C is scurvy. This disease will not be discussed here, though it may be necessary to recognize or differentiate its oral manifestations in laryngology.

Hemorrhage from the nose may also be a symptom even in so called sub-clinical scurvy.

With the exception of scurvy, there are no characteristic conditions of the ear, nose or throat typical of vitamin C deficiency.

VITAMIN D.

Vitamin D is known to control bone metabolism by the utilization of phosphorus and calcium. The disease in oto-laryngology where bone metabolism is important is otosclerosis. Lesions in the labyrinth similar to otosclerosis have been reported²⁰ in experimental animals on a diet deficient in vitamin A and D.

Clinically there is no evidence that a lack of vitamin D is a causative factor in otosclerosis or that its administration influences its progress.

VITAMIN K.

The beneficial effect of vitamin K in hemorrhage is in cases due to lack of prothrombin, usually associated with a lack of bile salts. Surgery of the ear, nose or throat is not often necessary in jaundiced individuals. A lack of prothrombin has been shown after massive hemorrhage. Further studies may show the value of vitamin K in hemorrhage such as severe tonsillar or nasal.

SUMMARY AND CONCLUSIONS

1. It is assumed that an adequate vitamin intake is necessary for general bodily welfare and therefore to the normal state of the ear, nose and throat.
2. We must be critical of adapting to humans the findings in experimental animals fed on diets deficient in the various vitamins.
3. Diseases of the ear, nose and throat characteristic of avitaminosis are rare. However, it may be a contributing factor in a number of conditions ordinarily considered due to another etiology.
4. The use of vitamin preparations is worth trial clinically in a number of ear, nose and throat

conditions, even though no definite lack of intake is shown.

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MANAGEMENT OF PERIPHERAL
VASCULAR DISEASE
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CHICAGO

The treatment of peripheral vascular disease rests on adequate diagnosis. A simple classification of the various disorders of peripheral circulation should always be kept in mind, as it will clarify the indications for the diverse forms of treatment. One must ask one's self whether or not a vascular occlusion is acute or chronic, organic or functional, inflammatory or degenerative, spastic or paralytic. Most of the bizarre and combined types of peripheral vascular disease can be brought down to a few common denominators (table 1). It is obvious that no single case

TABLE 1 — Classification of Peripheral Vascular Disease

Organic		Functional	
Acute thrombosis	Chronic congenital traumatic inflammatory degenerative	Vasoparalytic	Vasospastic neurogenic endocrine metabolic toxic
embolism			

of vascular disease is purely organic or purely functional. It is the purpose of an examination of the peripheral vascular state to determine the various elements in the individual case and to estimate for the sake of prognosis and type of treatment, the reserve capacity of the vascular bed, or, expressed differently, the extent of the organic damage.

The objectives of treatment may be readily summarized under three headings (table 2).

TABLE 2 — Objectives of Treatment in Peripheral Vascular Disease

- 1. To improve collateral circulation.
- 2. To alleviate pain.
- 3. To remove non-viable parts at the optimal time and level.

These can be accomplished by physical therapy, by drugs, and by surgical procedures (table 3).

TABLE 3 — Methods of Treatment for Peripheral Vascular Disease

Physical	Medical	Surgical
Heat	Vaccines	Sympathectomy
Hot and cold bath	Hypertonic solutions	Paravertebral block
Postural exercises	Alcohol	Peripheral nerve block
Massage	Theobromine	Amputation
Diathermy	Papaverine	
Short wave	Nitrites	
Iontophoresis	Choline derivatives	
Suction and pressure	Iodides	
Venous Hyperemia		

From the Department of Surgery, University of Illinois, College of Medicine. Address given at Post Graduate Conference of the Illinois State Medical Society, La Salle, Illinois, October 3, 1940.

An intelligent coordination of these procedures will yield the best results. As a recent monograph stated, "Because one is a physiotherapist, is no excuse for the employment of physical measures exclusively in the treatment of peripheral vascular disorders. Nor is there any justification for the indiscriminate performance of ganglionectomy, because one is a neurosurgeon." To this I may add that some of our internists are also inclined to push fluids and drugs through all available channels and ignore other forms of therapeutic approach.

Coordination of these various measures may be accomplished by men familiar with peripheral vascular disease, but chiefly by the family physician, who can see to it that specialists do not run away on one of their individual hobbies. There are, of course, several ways of getting well, and the social and economic status of the patient is one of the important factors in selecting types of treatment.

Physical Therapy in Peripheral Vascular Disease

Heat in all forms is useful, but the cheapest, safest, and most effective is the continuous or intermittent use of a "baker." If the patient is bedridden, heat should be applied continuously. If the patient is ambulatory, it is easy to utilize the night for a prolonged use of the baker. The temperature is either under thermostatic control or can be adequately regulated by the number and intensity of electric bulbs. The temperature within the baker must not be so high as to require more blood and more oxygen than the narrow or occluded vascular channels can deliver. Most patients with arterial occlusions are comfortable between 85 and 90 degrees F., but occasionally the optimal temperature is lower than that; as low as 75 degrees F. With the lower temperatures, the rate of oxidation in the tissues is slower and there will ensue a diminished requirement for oxygen. If the patient is complaining of pain under the heat cradle, it signifies that he is getting too much heat. This is just as harmful as if his feet were too cold. While heat is an active vasodilator, it must be remembered that in the presence of a greatly diminished flow of blood vasodilatation will increase stasis and require too much oxygen. In case of heat-intolerance, it is best to apply heat to the root of the limb. Generally speaking, it is safest to wrap the affected limb in cotton and move the cradle up toward the root of the limb.

Alternate hot and cold baths are frequently used to "tone up the blood vessels." In the experience of our group their value is rather questionable in peripheral vascular disorders. They tire the patient, macerate his skin, cannot be used in the presence of gangrene, and may even aggravate vasoconstriction. To my mind even mild vasodilatation is far more desirable than alternate thermal insults, which do not provide rest for the blood vessels. Better than that is a warm soak for 15 or 20 minutes, preferably with a mild antiseptic, such as a 1:8000 solution of potassium permanganate. The latter controls the often coexisting ringworm infection, which may be the starting point of serious infection, gangrene and loss of digits or limb. Warm sitz-baths at night are useful.

Postural exercises have a sound foundation, and oscillometric curves illustrate the increasing pulse volume in the dependent position. They may be done actively by the patient or passively by an oscillating bed. The patient can also elevate the leg with the help of a pulley, which saves a lot of oxygen that would otherwise go to nourish the contracting muscle. This passive elevation can be combined with intermittent venous hyperemia, which will be discussed later.

Massage is a time-honored method to improve circulation. In the absence of venous or recent arterial thromboses and when the skin is intact, mild massage may overcome vascular spasms and produce a reactive hyperemia. As will be discussed below, we have far more efficient methods to produce reactive hyperemia. In our clinic, perhaps for economic reasons, we have made little use of massage.

Diathermy treatments. — To heat up the lower extremity, electrodes are placed on the abdomen and the lower back. For the treatment of the upper extremity, the electrodes are placed on the side of neck and the upper dorsal spine. Thus not only is the blood being heated as it passes through the root of the limb but a reflex vasodilatation is produced, which is mediated through the sympathetics, as it is absent in sympathectomized patients. We have not placed electrodes on affected limbs, as they are increasingly sensitive to burns. In our experience the application of hot water bottles to the root of a limb, or heating the entire body with a large cradle, is almost as effective and much cheaper. These reflex heat treatments are especially valu-

able in relieving vasospastic phenomena, so that they can be advantageously combined with the newer mechanical forms of stretching the vessels, such as suction and pressure.

Short wave therapy, judging from reports, should be even more effective than conventional diathermy. Again, applying it to the root of the limb, both the vessels and the vasomotor supply are affected. Further study is necessary to establish its value and indications in the treatment of peripheral vascular disease.

Iontophoresis. Vasodilators such as histamine, acetylcholin, and mecholyl have been introduced through the intact skin by placing them on the positive pole and carrying them into the tissues by the galvanic current. We found in unpublished observations that the skin often developed a refractory state, with increased pigmentation and thickening and that the liberation of vasodilator substances from the patients own tissues was a far simpler and more economical method. The use of accumulating tissue products will be discussed under the heading of intermittent venous hyperemia. The use of sodium chloride, however, by iontophoresis has given encouraging results in scleroderma and thrombophlebitic indurations.

Passive Suction and Pressure Exercise

A physical method of dilating collateral arterial pathways of an extremity, whose major arterial pathways had been occluded by trauma or disease, has been called passive vascular exercise. The effect of machines that produce alternate suction and pressure in a transparent boot surrounding the extremity, is variable. In acute arterial occlusion, in frostbite, and in arteriosclerosis of the large and medium sized vessels, this treatment has been of benefit. In Buerger's disease and in arteriolar obstructions seen in arteriosclerotics and diabetics, the results have been doubtful. The difficulty in evaluating the merits of this treatment lies in the fact that such patients are usually also treated by rest in bed, mild heat, forced intake of fluids, abstinence from tobacco, and vasodilators. In addition, the hospitalization of these patients enables the physician to regulate the patient's diet, and to provide proper surgical care of the wounds, ulcerations, or necroses. Finally there is a psychic influence, which should not be disregarded. These patients are in fear of losing parts of their ex-

trinity; they have tried other measures, which have failed; their hope lies in this mechanical device, which will restore the circulation to normal. One must also take into consideration that many of the elderly arteriosclerotics have cerebral vascular disturbances; they are easily impressed, are delighted or become despondent at the slightest change in their physical condition. Nevertheless from an experience with a considerable number of ambulatory patients, who have received no medication, no mental suggestions, no diets, and whose only treatment consisted of one-hour treatments by alternating suction and pressure three times a week, Mrs. Eunice Roth, Miss Elizabeth Strunk and I gained the impression that, roughly, one-half of the patients have had subjective relief.*¹ These treatments cannot influence the action of the heart nor can they change the site or extent of the vascular occlusion. They do not make new feet for the old.

Intermittent venous hyperemia. In analyzing the mechanism by which alternating suction and pressure exert their effects on peripheral circulation, Hick, Coulter and I² were struck by the fact, that with each period of suction, there occurs constriction of the thigh at the cuff, which is released during the positive phase. The phenomena of reddening of the toes, filling of the veins, rise of surface temperature, and the increased mobility of the toes, all of which can be observed as objective changes produced by passive vascular exercise, can be duplicated by intermittent venous hyperemia. While any blood pressure apparatus can be used to produce intermittent venous stasis, a wide, eight-inch cuff, conically shaped to fit the thigh is preferable. The amount of pressure should not exceed the diastolic pressure of the extremity at that level. It usually varies between 90 and 60 millimeters of mercury. If the extremity is edematous, cyanotic, ulcerated or gangrenous, 40 millimeters of mercury should not be exceeded, although with later improvement the pressure can be gradually raised. The duration of venous compression is determined by the appearance of definite redness; this occurs in from one to two minutes, when pressures of 60 to 90 millimeters are used. The duration of the release should be as long as that of the compression.

*In a recent survey, Beck, Roth and I found that the degree of involvement present at the onset of treatment, determines the benefit one may expect from such therapy.

The effect of such a procedure is a mechanical filling and stretching of the vascular tree during constriction and a chemical vasodilatation during release as a result of an oxygen-debt, which develops during constriction. Elevation on a pillow helps to empty the dilated vascular tree by gravity and thus supplants the positive phase in the suction and pressure treatment.

Such treatment can be used at home, at comparatively little cost, far away from medical centers. It is therefore available to a large number of patients. I have not been able to find any difference between the clinical results obtained by this method and the suction-pressure treatment.

Recently an apparatus has been described with an automatic control of constriction and release. Patients may be treated at home, and in suitable cases, may continue their occupation. Some patients have been faithfully using this treatment at home as long as two and three years.

Medication in Peripheral Vascular Disease

Provided that cardiac function is adequate and blood pressure is maintained, the object of drug therapy in peripheral vascular disease is to dilate that peripheral vascular bed. This can be attained by measures producing central vasodilatation through fever, through mechanical stretching, by increasing blood-volume, or by drugs acting on the smooth muscle of the blood vessels.

Typhoid vaccine. Injections of typhoid vaccine have been made to produce fever and thereby obtain peripheral vasodilatation for many years. It is customary to start with 25 million bacteria of a triple typhoid vaccine intravenously and increase the dose up to 300 million bacteria. A course of treatment consists of about 12 injections given biweekly. It must be remembered that arteriosclerotics, especially with cardiac impairment, are endangered by such treatment, and that even in Buerger's disease, where its use is especially recommended, the chill preceding the fever is accompanied by vessel spasm and may produce thrombosis. It has also been shown that the fever thus produced is central in origin, and that vasodilatation cannot be produced by it in a sympathectomized extremity. My practice has been to avoid these large doses and to establish one which will produce only a minimal rise in temperature and white count without a clinical reaction. These subreactionary doses vary

between one million and one hundred thousand bacteria, given intravenously and may be cautiously raised, so that they never produce a clinical reaction. It is thought that the action of such treatment is not so much the production of fever as its stimulating effect on the low-grade, chronic inflammation of the arterial wall; perhaps it may also act as a non-specific desensitization of a sensitized intima. At all events, the clinical results have been just as good in patients suffering from Buerger's disease, as when using the larger doses, and the treatment is convenient and harmless. Only inflammatory lesions have been treated by this method.

Hypertonic solutions. Many authors place great emphasis on intravenous injections of a 5 per cent solution of sodium chloride, given in doses of 150 to 300 cubic centimeters, two or three times a week. One can actually demonstrate an increased pulse volume of an extremity during and at the completion of the injection. This treatment is mainly advocated in Buerger's disease. Three hundred cubic centimeters of 5 per cent salt solution should attract 1200 cubic centimeters of water from the tissues, in order to reestablish the isotonicity of the blood. This increase in blood volume in patients, whose blood volume is low and whose blood viscosity is usually slightly increased is beneficial. In my experience, however, the mechanical effect of this increased blood volume disappears in one hour. A possible slight hemolysis, which one might get from such hypertonic solutions, could act as a mild parenteral protein reaction, but this can certainly be accomplished in a simpler manner by small doses of typhoid vaccine. Furthermore, one might consider the dehydrating effect of hypertonic solutions on edematous tissues and on moist gangrene, but should such an effect be desirable, 50 per cent dextrose or sucrose would be much more efficacious. In spite of the emphatic insistence of many authors, I have not found it necessary to institute these intravenous injections routinely. The effect on blood volume is so transitory, and their other effects are so much more simply obtainable, that the injections have been abandoned in my clinic. That water is forced in all patients to 12 glasses a day, unless contraindicated, is obvious.

There is a possible effect of the sodium or the sodium chloride on Buerger's disease. Should one feel the necessity of supplying it to the

patient, one can readily give ten fifteen grain tablets of sodium chloride or Ringer's tablets by mouth. This at least will make the patient more thirsty and will also retain fluid longer in the body, than if water alone is ingested. Diets, low in potassium, accomplish the same effect.

Alcohol. The sedative and vasodilator action of moderate doses of alcohol is well known. Actually it is easy to demonstrate the rise of the temperature of a toe and the increased oscillographic readings following intake of an alcoholic beverage. For those who are used to taking a highball or a cocktail before dinner temporary increase in circulation can be agreeably obtained. Whether it has a slowly accumulating beneficial effect on the reserve capacity of the vascular bed is doubtful. At least one can hold out one compensation for the complete abstinence from tobacco, on which I strenuously insist. In fact, patients are not accepted for any form, physical, medical or surgical treatment, unless they are willing to stop smoking entirely. This rule applies to Buerger's disease and is less rigidly enforced in arteriosclerotics.

Theobromine. This group of alkaloids has been used by our group since the emphasis of George Scupham on its beneficial effects. The alkaloid, or the sodium salicylate or sodium acetate is prescribed three times a day in doses of $7\frac{1}{2}$ to 10 grains. It must be taken after meals or at least with some bicarbonate of soda as occasionally gastric disturbances are experienced. It can be taken for many months in succession without harmful effects and benefits impaired coronary circulation which frequently coexists.

Papaverine. This drug relaxes spasm of smooth muscle and in addition has a slight narcotic effect. While it can be used orally for a prolonged time, combined with theobromine, its greatest usefulness is in acute arterial occlusions any large vessel. I have employed doses of $\frac{1}{2}$ grain intravenously in early cases of embolism and thrombosis, and feel certain of its value in maintaining and facilitating collateral circulation.

Nitrites. Sodium nitrite, in doses of one cubic centimeter of a freshly prepared four per cent solution has been recently used in our clinic to test the capacity of the vascular bed.³ There are no untoward effects from this small dose but the patient should be kept in the horizontal position.

The effect lasts at least one hour. A therapeutic application of the drug in acute arterial occlusion is unwise, as it may increase the tendency to shock.

Choline derivatives. The vasodilating action of acetyl choline and beta-mecholine are sufficiently known. They can be given intra-muscularly and even by mouth, if large doses are used. They also can be introduced under the skin by iontophoresis as discussed above. The action of this drug, which is identical with parasympathetic stimulation is, however, quite evanescent. The same is true of prostigmine.

Iodides. Iodides have been used empirically in arteriosclerosis for a long time. Its effect on gummatous lesions is well known. Evidence that it reduces blood viscosity or that it links itself with blood lipoids and, therefore, inhibits lipoid deposits in the early stages of human atheromatosis is not conclusive. It has been shown that both iodine and thyroid extract prevent experimental atherosclerosis produced by feeding of cholesterol to rabbits. Clinically the intermittent administration of iodides to arteriosclerotics and also to patients with Buerger's disease may be of benefit.

Surgical Treatment of Peripheral Vascular Disease

Indications for sympathectomy in peripheral circulatory disturbances have been summarized in the accompanying table (table 4). For a

TABLE 4 — Indications of Sympathectomy for Peripheral Circulatory Disturbances

Diagnosis	Indications
Raynaud's Phenomena	Lack of marked structural changes in the vessels; absence of sclerodactylia
Buerger's Disease	Definite collateral reserve. Absence of acute inflammation or arteriolar destruction. Poor response to conservative treatment.
Poliomyelitis	Moderate paralysis limited to one extremity; evidence of vasospastic phenomena. Age preferably between six and ten.
Reflex Dystrophy (Causalgia, traumatic vessel spasm, Sudeck's atrophy)	Severe cases, resistant to physiotherapy exhibiting exaggerated vasomotor responses

sympathetic denervation of the upper extremity, the preganglionic sympathectomy of Smithwick⁴ has superseded all previous methods. For the lower extremity, the lumbar ganglionated trunk between the second and fourth ganglia is excised. An anterolateral extraperitoneal approach is used. The causes of failure are readily found in incomplete denervation, improper selection of the type of patient or postganglionic degeneration. Our later operations are undoubtedly more successful than the earlier ones.

Obviously other forms of management should be combined with surgical treatment to obtain the best results. The patient with Buerger's disease, who reverts to smoking will suffer thromboses in the sympathectomized extremity. The outstanding effect of sympathectomy on peripheral circulation is that it frees the extremity from vasomotor control, and prevents all intrinsic and extrinsic stimuli from producing vasoconstriction. At the same time the metabolic control of the vascular supply, the direct action of heat and cold, and the reactive hyperemia produced by anoxemia remain intact. Numerous observations have convinced me that after sympathectomy the circulation does not return to the preoperative state.

Paravertebral block with procaine for the relief of vessel spasm which occurs following acute vascular occlusions. A temporary block of the sympathetics with procaine is a most efficient procedure. It requires special equipment and a certain amount of experience. Together with papaverine and large abdominal heat cradles it constitutes a most efficient method to prevent gangrene in cases of sudden thrombosis and embolism.

Paravertebral block with alcohol. The thoracic and lumbar sympathetic trunks and ganglia can be injected with 95 per cent alcohol, which duplicates the effect of sympathectomy for at least 4 to 6 months. A rather extensive trial of this method in our clinic indicates that: (1) the injections even in skilled hands result in a certain percentage of neuralgias, in the thoracic region, (2) because of the anatomic variations, or lymphatic enlargements the injections do not always produce a complete sympathetic denervation, but (3) in patients who are too debilitated or whose condition does not war-

rant sympathectomy, the method is an excellent substitute. In patients with cold, numb, pulseless extremities, following arterial embolism, in younger arteriosclerotics, and older patients with Buerger's disease, the treatment relieves rest pain, tingling, and numbness. It will not improve intermittent claudication, but will place the extremity in a state free from environmental influences.

Peripheral nerve block. In the presence of continuous intractable pain of the toes or foot, with or without gangrene, desensitization of the foot can be obtained by crushing the five sensory nerves of the foot with a hemostat. No motor paralysis results when these operations are done a few inches above the ankle, except that of the small muscles of the foot. This causes relaxation of the transverse arch, which must be supported by padding. In bedridden patients, who refuse amputation or whose condition does not warrant it, it affords great relief, facilitating avoidance of narcotics. Ulcers and gangrenous areas can be dressed and dakinized without pain. In the ambulatory patient, whose foot is entirely insensitive, there is some danger of injury remaining unrecognized. Calluses may become infected and infection may spread under the plantar fascia before the patient reports to the surgeon. While reactive hyperemia is present in a completely denervated extremity, so-called "trophic" ulcers may develop because the short axon reflexes from sensory nerves to blood vessels are lost. Nevertheless, I have removed toes and obtained primary union in such anesthetized areas.

One important point must be made. Should nerve crushing be decided on, it is advisable to desensitize the entire foot in two or three stages. Desensitization of a part of the foot, almost invariably leads to complaints in the unanesthetized areas. There is also an occasional patient who will continue to have deep, boring pain — though the skin is entirely numb above the same area. Whether this is "central" pain emanating from higher centers that have been subjected to continuous painful stimuli, or whether these sensations are carried along the blood vessels for longer segments, is insufficiently understood. Unfortunately the surgeon often gets these patients at a time when they are addicted to narcotics, which constitutes an additional problem.

Amputations. When parts of the extremity are irrevocably lost or endanger life by absorption and spreading infection, delay of amputation is dangerous. With the advent of newer methods of conservative therapy, the impression has spread among physicians and the laity that amputations are unnecessary mutilations and that the up-to-date doctor does not amputate. Aside from the fact that some patients require immediate amputation because of spreading infection or massive gangrene, one often sees cold, pulseless, paralyzed legs, which have been "saved," but which are useless to the patient and cause continuous pain. Such patients can be restored to economic efficiency by amputation at an optimal level. This level must be determined by the level of adequate circulation and by considerations of adequate weight bearing and other technical requirements of a well fitting artificial limb. The technic of amputations has been so modified that these are now delicate plastic operations performed under low spinal anesthesia and should minimize the appearance of painful cold stumps with stump neuromas, ulcers, marginal necrosis of bone and a paralyzed musculature.

CONCLUSIONS

This brief survey describes the experience of our clinic in the treatment of peripheral vascular disease and does not aim to cover the entire field. Perhaps the most important step to obtain best results — after the proper diagnosis is made — is to strike a proper balance between these various forms of therapy. Anyone who extolls the virtues of one form of therapy to the neglect of others, will ultimately have to admit that a balanced therapy leads to the best results.

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CONSERVATIVE USE OF ARTIFICIAL PNEUMOTHORAX

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Artificial pneumothorax along with other forms of collapse therapy in the treatment of pulmonary tuberculosis has achieved widespread acceptance. This recognition of its value has led to abuses with which we are all familiar. Routine use in minimal cases and the encouragement of ambulatory treatment with patients continuing at work, are practices which are mentioned only to be condemned.

The stress which has been placed on the mechanical forms of rest has caused many to forget the importance of simple and complete bed rest. Frequently one must defend his position for allowing the spontaneous recovery of a tuberculous patient. This is particularly true if the process involves six months to a year of complete physical inactivity. Sight is lost, of course, of the fundamentally important fact, that such a program should be followed even in those patients who require collapse measures. This attitude has been more prevalent among the younger generation of tuberculosis physicians. A note of conservatism coming from one of this generation may therefore be taken as a hopeful sign. The background for these remarks is the experience of over seven years in active charge of the pneumothorax work in a small private sanatorium. During this time it has been my good fortune to have the conservative supervision of Dr. George Palmer.

The figures to be presented are not considered to be statistically important. They deal with the five year period from January 1, 1935 to January 1, 1940. In a group of 74 patients, the treatment had been started elsewhere in 29, and 6 were seen as outpatients only. This leaves 46 in whom the decision and attempt to establish artificial pneumothorax was made by us. It is with this group, which amounts to roughly 25 per cent of all patients treated, that we are at present concerned. This proportion was influenced by two tendencies, first to allow a chance for natural resolution and second a hesitancy to interfere with the apparently inevitable outcome in advanced bilateral disease.

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The estimated duration of active tuberculosis as determined by the history was less than six months in 18 instances and from six months to one year in an additional 12, so that in about two thirds of the total it was less than a year. The period of observation in the sanatorium prior to the institution of pneumothorax therapy was much shorter. In over 50 per cent of the cases it was less than one month. This was an interesting and somewhat surprising finding. We have always felt that artificial pneumothorax was decidedly an elective procedure, and one not to be undertaken lightly. We agree with the recently expressed view that, "pneumothorax as a treatment, in its long-time implications, is as serious as thoracoplasty."¹ The size of this group was increased by the number of patients admitted primarily for such therapy after the failure of spontaneous improvement on rest elsewhere. Others had had repeated hemoptysis or active pulmonary hemorrhage and collapse of the lung was a more or less emergency procedure.

Consideration of the extent of lung involvement reveals an overwhelming majority with far advanced disease. Only 4 minimal cases were included and in 3 of these it was by the replacement of a pleural effusion where the evidence of parenchymal involvement proved to be slight. Seven with moderately advanced and 35 with far advanced lesions were seen. Of the 35 far advanced cases, 24, or about half the total number treated had severe constitutional symptoms at the time collapse therapy was undertaken.

In classifying the most urgent indication, 10 had predominantly unilateral disease without definite evidence of cavitation. Included here were those whose lesions were stationary or progressive on rest alone. Twenty had obvious excavation which in our judgment was unlikely to heal by natural resolution or which had failed to show improvement under observation. In 12 instances recent hemorrhage had occurred. Four pneumothoraces were instituted by the aspiration of pleural effusions and their replacement by air. These were followed carefully to determine whether the collapse so established should be continued as a therapeutic measure.

Consideration of these figures reveals several important principles. Most minimal and many moderately and far advanced cases make rapid and progressive improvement on properly super-

vised bed rest.² When one allows this opportunity it naturally follows that the number of minimal and moderately advanced lesions in the collapse group will be small. The danger of spread of the disease during a reasonable period of watchful expectancy has been very much exaggerated. We feel that where it occurs frequently the rest program has been weakly conceived and poorly executed. Less can be expected from the patient with open cavity and marked constitutional symptoms. Such individuals should have active treatment earlier and should constitute the bulk of a well regulated sanatorium pneumothorax service.

In this study it was found that the right lung had been chiefly involved in 19 cases and the left in 27. Of 47 attempted inductions, 7 were complete failures in that free intrapleural space could not be found. Factors which militate against success include widespread involvement, history of pleurisy, disease of long standing and proliferative in type and patient in the upper age groups. In an additional 12 the anatomical result was poor, usually due to extensive adhesions. Five of these might well be added to the group of complete failures since they were abandoned within less than six months, being felt to be either ineffectual or actually harmful. In 6 the collapse was fair and in 22 it was good from an anatomical point of view. In brief, the results were considered good in slightly less than one half, and adequate to justify the continuation of the treatment in about two thirds of the total.

During the period in which the patients were under observation the tension within the intrapleural space was classified as negative, intermediate or positive. It was found that only negative, or less than atmospheric pressures had been used in 8 instances. In 13 they were intermediate and in 18 greater than atmospheric. Many factors enter into the determination of the intrapleural pressures used in a given case.^{3,4} The ideal situation is that in which satisfactory results are obtained while remaining entirely on the negative side. Here the process is one of relaxation and will usually be selective if there are no adhesions and the disease is localized.

Excessive pressures used early in the presence of widespread adhesions and exudative disease are very dangerous. Such attempts to force the

establishment of collapse by compression, and against adhesions, are misguided and can only lead to serious complications and poor results. There is a point, however, in the evolution of many pneumothoraces, where adequate collapse has originally been obtained with negative or intermediate readings when a tendency to re-expansion of the lung becomes evident. In such instances positive pressures can and should be used to slow down or stop the premature loss of the pneumothorax space.

The above discussion is based largely on anatomical considerations, and it is necessary constantly to remind oneself that tuberculosis is an infectious disease. Mere change in the position of tuberculous lesions does not automatically and immediately effect their transformation into healed scars. Even the coaptation of cavity walls, as desirable as this may be, does not in itself cure the patient. What is required is the acquisition by the body of the little understood factors of increased resistance and immunity which enable it to stop the spread of the infection. Allergic and immunological adjustments must be made so that the reactions become predominantly those of proliferation and fibrous tissue formation in contrast to the previous exudative, ulcerative, caseative tendencies. These changes require time. It is undoubtedly true that much of the value of early relaxation of the diseased lung by artificial pneumothorax is based on the following facts. The lung is put more completely at rest. Absorption from the tuberculous lesions is decreased. Their spread, especially to the better side, is usually prevented. These conditions are operative for a sufficient length of time to carry the patient over a critical period and allow his natural bodily reactions to change and develop to the place where progressive healing is possible.

One measure of the success of artificial pneumothorax is the conversion of the sputum. Bacilli have usually been present intermittently or continuously in the cases so treated. Sputum conversion was considered to have occurred at the time of the first negative which was maintained for three months, and which was seldom or never positive later. In 22 patients, or a good 50 per cent of those in which any collapse was obtained, the organisms disappeared within the first three months. In no instance did this occur after the end of a years treatment. This is

in agreement with common experience in that it shows that the good results are usually fairly prompt in making their appearance.⁵ It is another argument against the prolonged maintenance of unsatisfactory pneumothoraces, a practice which is frequently harmful in itself and which delays the possible benefits of other measures.

The occurrence of fluid in the pleural space is so common that it can hardly be considered as a complication. Success or failure is frequently determined by the management of the situations which arise in this connection. It is true that the formation of a clear straw colored effusion will usually slow up the absorption of air and cut down on the amount and frequency of re-fills required to maintain the desired collapse. However, the rather severe constitutional reaction, which may accompany its formation, cannot be minimized. When one realizes that every such patient is a potential candidate for a tuberculous empyema, he must feel more comfortable about those whose pleural spaces remain clear.

Published series show that between 50 and 80 per cent of cases develop demonstrable effusions at some time during collapse therapy.⁶ Of these 20 to 30 per cent go on to the formation of tuberculous empyema. The figures which follow should be discounted because in most instances they cover only part of the course of treatment. While it is true that effusions are more likely to develop during the early months, they may occur at any time and particularly during attempts at reexpansion after prolonged collapse. Twenty-two patients remained free of fluid during the period of observation. Seventeen had an appreciable amount and practically all were aspirated on one or more occasions. In 6 of these the effusion was present at the beginning of treatment and the pneumothorax was started by aspiration and replacement with air.

Fluid is viewed rather complacently by some workers, and only disturbed when present in large amounts or accompanied by marked constitutional symptoms. Our policy has been frequently repeated aspirations where fluoroscopy indicates an estimated 100 c.c. or more. This permits changes in the manometer readings through which by trial one may determine what intrapleural pressures will hinder its recur-

rence.⁷ The regular removal of this potential culture medium cuts down the chance of empyema formation. It is also true that permitting its accumulation over periods of time leads to marked pleural thickening and the formation of much fibrinous debris. In the cases treated with frequent aspirations during the five year period in question only one developed a typical tuberculous empyema.

A factor of great importance in the final outcome of pneumothorax treatment is the extent and evolution of the disease in the contralateral lung. Among 35 patients, the involvement of the opposite lung was minimal or undetectable in 24, moderate in 10, and advanced in 1. In all of these there was satisfactory regression of the lesions. The remaining 4 require special mention. The first had bilateral pneumothorax. The second had temporary collapse for control of hemorrhage, and died of tuberculosis and Parkinson's disease. Another refused collapse of a large cavity, suffered massive hemorrhage which was treated by artificial pneumothorax, and died within three months with widespread new lesions in the better lung. The fourth, a male 54 years of age, failed to respond to an anatomically good collapse, left the sanatorium to have refills continued at home and died within one year.

Bloch, Tucker and Adams have recently pointed out the need for longer periods of observation in reporting results of pneumothorax therapy.¹ They suggest a minimum of two years following complete reexpansion, before feeling reasonably sure of a favorable outcome. Their position is well taken and emphasizes one of the difficulties in evaluating therapeutic methods in tuberculosis. In view of the relatively short time covered by this study, little can be indicated as to what will finally be accomplished in many of these patients. However, their condition, where known by personal observation, has been classified at yearly intervals following the institution of collapse therapy. This is not necessarily their present condition as in some instances they have been lost to view. Two have been followed for less than a year. The condition of 6 was unknown at the end of one year. Two were dead, 1 improved following thoracoplasty, and 1 with reexpanded lung and arrested disease. Nine were still under treatment,

1 with tuberculous empyema, 2 improved, 5 quiescent and 1 arrested. Among 11 patients after two years, 1 was dead; 2 had reexpanded lungs, 1 being improved and the other arrested; and 8 were receiving refills, 1 improved, 3 quiescent and 4 arrested. Two patients with arrested lesions were still taking air at the end of three years. In the four year group, 1 was dead, 1 had bilateral pneumothorax, and 2 were reexpanded and arrested. Five years later 1 was reexpanded with arrested disease.

Among those in whom unsuccessful attempts to establish pneumothorax had been made; 1 died within a year, 2 had subsequent phrenic operations and died within two years, 2 had subsequent phrenic operations and thoracoplasties and are still receiving sanatorium care, and the whereabouts of 2 were unknown at the end of a year.

It is interesting to note that in no instance has elective reexpansion been undertaken where satisfactory collapse of an originally advanced lesion could be maintained.⁸ The pneumothorax space was lost unavoidably in 5 cases, usually due to obliterative pleuritis. There was elective reexpansion in 5, due either to unsatisfactory collapse or upon advice of other physicians. Of the 29 remaining, 11 are still under collapse personally, 6 are receiving refills elsewhere, 4 are dead and the whereabouts of 8 are unknown.

SUMMARY

Results of five years experience with artificial pneumothorax in a group of 46 tuberculous patients have been presented.

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POTENTIAL INGUINAL HERNIA WITH ESPECIAL REFERENCE TO DIRECT HERNIA

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A questionnaire addressed to the heads of medical departments of several large corporations on the question of inguinal hernia as a cause of disability, brought the observation that all males were considered as having potential hernias. This attitude was adopted because the surgeons questioned felt that an indirect hernia was primarily the result of a congenital pre-formed sac, while the direct hernia was due to either developmental defects in the muscular structures of the inguinal region, or to atrophic changes in the musculature due to age, obesity or other factors.

In examining applicants for inguinal hernia, the criteria for refusal to employ varied. The presence of enlarged external and internal rings, the finding of a large external inguinal ring with an impulse on coughing, and the presence of an enlarged external ring alone. Their criteria as well as the age and type of work in which the employee would be engaged, were factors in passing or rejecting the applicant. The most liberal interpretation was that taken by an examining surgeon who said that he did not reject any applicant for employment who did not have a visible or palpable "bulge" when the abdominal pressure was raised by straining or coughing. He stated that the incidence of hernia was not any higher amongst the many thousands of his company employees than those in a similar line of work, when the criteria for examination was more strict.

In a group of patients with unilateral inguinal hernia either of the direct or indirect type in which the cause of the hernia was in many instances ascribed to occupational trauma; the unaffected side was operated upon.

This was done because the patient had an enlarged external inguinal ring, or large internal ring on the unaffected side. The patients were not thought to have bilateral hernia. The unaffected side was operated upon because it was felt that the patient had anatomical defects similar to that which had caused the hernia on the affected side and that a potential hernia was present, which if corrected would prevent future disability and hospitalization. None of these patients were in public or charity hospitals. Consequently it has been possible to check on the results of the operative procedure. The item of interest in this study has been the high incidence of direct hernia, and the fact that anatomically the factors making for the production of direct hernia is present at an early age and is, as is well known, a bilateral defect.

There were thirty-one males in the series. The youngest was four years of age and the oldest sixty-four years of age. Eighteen had hernia on the left side while thirteen had right sided hernia. There were fourteen indirect hernias. Eight had indirect and direct hernias. Two had sliding hernias. Five had direct hernias and two had indirect hernias with non-descent of the testicle.

The conjoined tendon was fragmentary or poorly developed in twenty-one patients. The poor development of the conjoined tendon was bilateral in sixteen patients and this occurred in patients twenty-nine years of age or older. In three patients the conjoined tendon was poorly developed on the side in which the hernia was present but well developed on the unaffected side. In these patients the hernia which was found was large and had been present for many years.

Operation on the unaffected side showed eight non-obliterations of the tunica funicularis, three small indirect and direct hernias, eight small direct hernias, one hydrocele of the cord. In eleven patients no evidence of hernia was found. Seven had well developed conjoined tendons and five poorly developed conjoined tendons. The conjoined tendon was poorly developed or fragmentary in nineteen cases. In a boy of five years, on the unaffected side the conjoined tendon was poorly developed and a small direct hernia was present, while on the opposite side he had a large indirect hernia with a well developed con-

joined tendon. Two men, twenty years and twenty-seven years respectively, had poorly developed conjoined tendons on the unaffected side, but well developed on the hernial side.

In this series of patients the most constant finding was a poor development of the conjoined tendon. This defect was most constant in men over thirty years of age, in those that had direct inguinal hernia. The defect in the conjoined tendon was found unilaterally in patients who had large indirect, or sliding hernia of long duration, and was also found in a boy six years of age.

Direct hernia has for predisposing factors, defects in development of the transversalis fascia and conjoined tendon. Atrophy of muscle due to age, obesity or disease. The exciting cause occasionally is the strain of heavy lifting by one of sedentary occupation; in this instance, the transversalis fascia suddenly gives way.

In the majority of instances direct hernias are slow of development, hence we find them in men who have done heavy labor for many years. Patients with chronic bronchitis or prostatic enlargement with coughing and straining to which they are subject also, often develop direct hernias.

Indirect or oblique hernia as has already been mentioned, is due to the presence of a congenitally performed sac. This type of hernia as we know may be present at birth. The sac may become closed, to reopen in later life, because of sudden or violent straining.

The repair of an indirect hernia anatomically is quite different than that of a direct hernia. But as an indirect and direct hernia are frequently a part of the pathology present, the repair of either or both must be contemplated at the time of operation.

A brief review of the anatomy of the inguinal region shows that the funicularis spermaticus as it passes from the abdominal to the external cutaneous ring is covered by the aponeurosis of the external oblique muscle. At the external cutaneous ring the arching fibres of the external oblique aponeurosis are inserted into the pubic tubercle, the pubic crest and symphysis of the pubis.

In well developed muscular individuals the cord structures lie in a cleft of the muscle fibres of the internal oblique. Beneath the internal oblique are the transversalis muscle and fascia.

The inguinal triangle through which a direct hernia occurs is normally protected in muscular individuals by a stout transversalis fascia, the arching fibres of the internal oblique and transversalis muscles and is further re-enforced by a fusion of the fascias of the internal oblique and transversalis muscles. This fused fascia, the *falx inguinalis* or conjoined tendon is inserted into the front of the pubis, the pubic tubercle, and the iliopectineal line. This fused fascia passes medially and with the aponeurosis of the external oblique becomes the anterior sheath of the rectus abdominus muscle.

In individuals with poorly developed musculature the *falx inguinalis* or conjoined tendon is deficient both in its muscular and tendonous portions. The tendonous attachment to the pubis is often fragmentary or entirely missing. The transversalis fascia instead of being a firm dense fascia, is thin and meshed. These individuals have all the anatomical defects which are favorable for the development of a direct inguinal hernia. The developmental defects mentioned are studied best on patients undergoing herniotomy, and they are seen much more clearly on the living than on the cadaver. This is particularly true in respect to direct hernia.

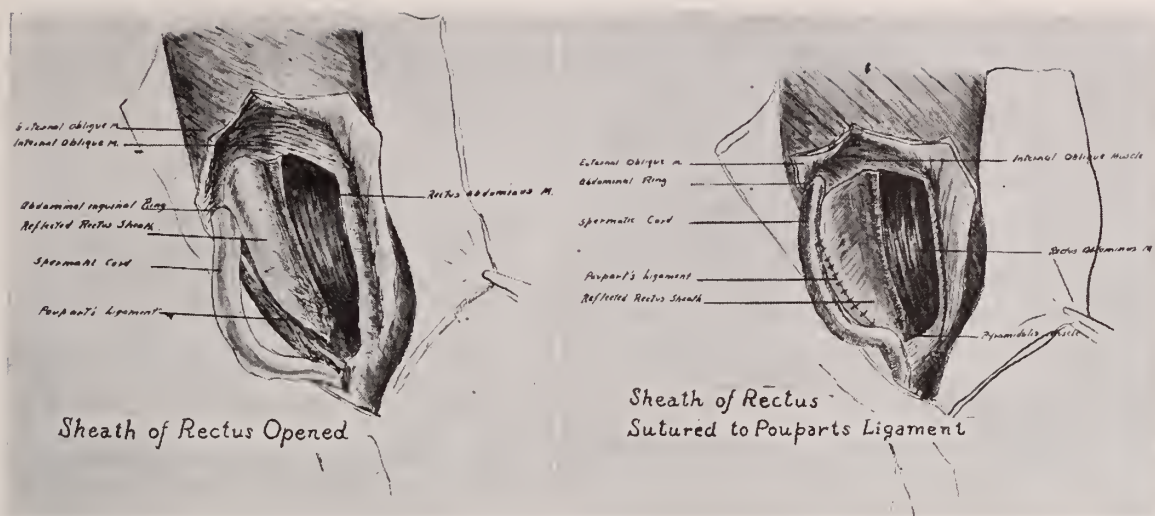
Types of Direct Hernia:

1. The simplest type of direct hernia is caused by a small hole in the transversalis fascia through which may protrude properitoneal fat or a portion of the wall of the urinary bladder. This type is comparable to a hernia of the *linealba*.

2. The direct hernia sac may be an enlargement of an indirect inguinal hernia, or it may be a part of a sliding hernia of the sigmoid or cecum.

3. The globular or ovoid type of direct hernia is the most usual type. The transversalis fascia has been slowly stretched or torn. The swelling may extend as far as the external ring in large hernias.

In the repair of direct inguinal hernia an adequate skin incision is made to insure good exposure. The external oblique is incised and the upper and lower edges retracted. The cord is identified and examined for evidence of an indirect sac. The direct hernial sac is easily separated from the cord and the cord retracted. The defect in the transversalis fascia may be closed



if the hernial opening is small. In a majority of cases, however, the fascial defect is too large to be closed without tension on the suture line.

Opening of the direct sac is of doubtful value. Injury to the inferior epigastric vessels or opening the urinary bladder may follow unless the sac is opened in the region of the internal ring. When a direct hernia co-exists with an indirect hernia, the sac then is opened. The preceding precautions being kept in mind.

Repair of the fascial defect is best accomplished by fascial approximation. Suture of a poorly developed conjoint tendon to the inguinal ligament is unsatisfactory because muscle is approximated to fascia and as has been pointed out by Seelig and Chouke, the suture line is likely to be unsatisfactory. Then too, tension on the suture line often defeats the purpose of the closure and results in recurrence.

A fascial closure of a direct hernia can be done by splitting the sheath of the rectus muscle. The closure is physiologically and anatomically correct because fascia is approximated to fascia without tension.

The rectus sheath is opened from the pubic crest in a curved direction upward and outward toward the region of the internal ring. With the cord retracted an anchoring suture is placed through the periosteum of the pubic spine and the rectus sheath is anchored to it. Then by a series of interrupted sutures, using silk or catgut the reflected fascia of the rectus sheath is approximated to the inguinal ligament. The external oblique may be approximated beneath the cord as a reinforcing measure. Or the upper

leaf may be approximated to the inguinal ligament and the lower leaf may be used to cover the cord. Care should be taken that the newly made internal ring be not too tight so as to constrict the cord or ilioinguinal nerve. In this manner a firm fascial wall is constructed without tension and the defect in the inguinal triangle is closed.

The after care of patients operated upon for direct hernia is as important as the operative procedure itself.

The use of local or spinal anesthesia is desirable. Because, 1. During the operative procedure by having the patient strain or cough, the defects of the transversalis fascia can be seen more easily. Then too, the irritation to the lungs by inhalation anesthesia can be avoided. This is important, because coughing or straining may cause a break in the recent repair.

2. The patient should be put to bed in the "jack-knife" position. That is with the back and head elevated, and the knees flexed and supported by pillows. This position relieves the strain on the suture line. Deep breathing exercises and movement of the extremities should be instituted early. This may reduce the incidence of pulmonary embolus.

3. Reflex urinary incontinence and abdominal distention are occasionally troublesome. The use of prostigmine, and heat to the abdomen, often obviates catheterization.

4. The patient should be kept in bed for at least twelve days. A support, such as the "London Type," should be worn when the patient walks.

The continued use of a support is advisable for several months if the patient does lifting or heavy work. Return to heavy work is best deferred for a six months period if possible, following operation.

The reported high incidence of recurrence in direct hernia, is I think, due to several factors. In many, the direct hernia was present at the time of previous operation, but was over-looked or not recognized, hence, no attempt was made to repair the defect, or the method used was incorrect.

In others, a repair was made with tension on the suture line. The necessary length of time of hospitalization was not insisted upon, or was refused. Finally the patient was returned to work at heavy labor too soon after operation.

SUMMARY AND CONCLUSIONS

1. Patients with unilateral hernia frequently have similar defects on the unaffected side. The conjoined tendon, is fragmentary in the majority of cases and the defect is bilateral.
2. Non-obliteration of the process funicularis is not an inconstant finding.
3. The use of local anesthesia reveals hernial defects when the patient increases intra-abdominal pressure. These defects might otherwise be overlooked. This is true especially for small direct or indirect hernia.
4. Direct hernia is a common bilateral defect and the repair can be best affected by utilizing the sheath of the rectus muscle.
5. Patients with large external or internal inguinal rings, with unilateral hernia, should have the unaffected side repaired. This may prevent future disability and hospitalization.
6. After care of patients following a herniotomy, is important. Bed rest for at least twelve to fourteen days should be insisted upon. A hernial support should be worn and the patient should be put at light work and if heavy labor must be done, the patient should not return to this type of work for at least four months. The reported high incidence of recurrence in direct hernia is due to many factors.
 - a. Non-recognition of the defect at time of original operation.
 - b. Improper method of repair.
 - c. Non-observance of proper post-operative care.

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ARTERIO-SCLEROTIC HEART DISEASE

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Arterio-sclerotic or senile heart disease is an intriguing subject, not only to us of the medical profession, but to all men and women in the latter decades of life. I call your attention to the fact that as human life becomes progressively longer due to the elimination of many diseases, the control of others, the improvement of the general social and economic states of our people (due in part to a paternalistic government) heart disease assumes a constantly more formidable role, so that today it is the outstanding cause of death in adult life. To make this subject more personal, I say to you, that if we reach the seventh and eighth decades of life three out of five of us will die of one or the other of the two types of heart disease. I propose to discuss with you at this time.

Arterio-sclerotic heart disease is not strictly speaking a disease at all, but merely part and parcel of the process of growing old. It implicates and involves either the heart muscle itself or its nutrient vessels the coronaries, or quite frequently, both. Accordingly let us consider the subject under two headings — 1. Heart Muscle Disease, 2. Coronary Disease.

Heart Muscle Disease. Here we encounter at the very outset difficulty in nomenclature. The old and long-accepted term Chronic Myocarditis was found unsatisfactory and has accordingly been discarded, for an "itis" assumes an inflammatory process, which is not borne out clinically nor pathologically. "Chronic Myocardosis" is no more illuminative. Dr. Henry Christian some years ago suggested "Chronic Non-Valvular Heart Disease," appreciating the non-existence of heart muscle disease in these senile hearts.

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My associates and myself like to think and speak of these senile heart muscles as "Chronic Myocardial Insufficiency," heart muscle not diseased but simply chronically insufficient to meet the demands imposed upon it. However irrespective of the nomenclature employed, what is the clinical picture of such a heart, what are the earliest symptoms and signs?

Symptoms — The earliest subjective manifestations of an insufficient or failing senile heart muscle in order of their frequency are:

1. Dyspnoea — varying in degree from shortness of breath on exertion to intense orthopnoea.
2. Precordial pain on exertion or mental excitation of aortic and not coronary origin, and due to pressure and strain on an inelastic and chalky aorta.
3. Cough — of cardiac origin.
4. A heterogeneous strain of general symptoms in part at least of cardiac origin, such as, general fatigue and lassitude, amnesia, the melancholia of senility, etc.

Physical signs: The cardiac signs of senescence are few, yet important and sufficient. That they are relatively few is not surprising, since our friends the pathologists are able to demonstrate many senile hearts apparently entirely normal in size, shape and dimensions, with only a few and inconsequential microscopic abnormalities.

Abnormal physical signs most frequently and consistently encountered are, as follows:

1. An increase in the aortic dullness in the second interspace from an accepted average normal of $4\frac{1}{2}$ cms., to 6 and 7 cms.
2. An increase or spread of the left ventricle.
3. A soft systolic (relative) murmur over the mitral valve, due to the increased width of the left ventricle.
4. A soft systolic murmur over the aorta (relative) due to the swish of blood through a chalky aorta.
5. Distant heart tones.
6. Alterations in rate, either a bradycardia or tachycardia.
7. Alterations in rhythm, chiefly ectopic beats, particularly ventricular, extra-systoles, or auricular fibrillation.
8. A variable blood pressure change either hyper or hypotensive.

The symptoms and signs are usually sufficient to suggest senile heart muscle insufficiency, particularly when corroborated by the X-ray and electrocardiogram. The X-ray, through a two meter plate, the ortho-diagram or a teleroentgenogram will certify a widened aorta and a left ventricular spread. The electrocardiogram provides additional a certification through changes in the QRS Complex and P and T wave alterations.

Prognosis — Possibly no type of heart disease or heart abnormality provides a more promising field for mediate and immediate results. In Rheumatic Heart Disease we are dealing with heart valves already crippled, and similarly in syphilitic heart disease we are dealing with a pathology well established. Not so in the aging heart.

Treatment — The care of the aging heart resolves itself around two factors: 1. Mechanical support through rest. 2. Drugs.

Everything in this world is relative including senility and longevity. Accordingly we encounter senile heart muscles from the fifth decade of life to the tenth. Irrespective, however, of the age or youth of the individual when the symptoms and signs enumerated appear, treatment must be instigated and promptly. All activities, physical, mental and gastro-intestinal must be moderated to suit individual requirements.

Fatigue of any sort must be discountenanced. An afternoon rest period whenever feasible and practical is important. Hours of sleep at night must be lengthened and abetted when necessary with sedatives.

2. Drugs — There are two distinct schools of thought concerning the practicability and usefulness of digitalis in senile hearts. The one decries its use, the other advocates it. It is our opinion based on some experience, that digitalis in small and sustained doses, leads not only to a real amphoria but to distinct improvement and elimination of symptoms, and to prolongation of a useful existence.

Coronary Disease. Let us now consider rather hurriedly the second type or expression of senile ectasy, coronary sclerosis. We might approach this subject rather diffidently, in the nature of a catechism, answering some questions quite positively, others timidly and still others not at all.

Etiology — It's our opinion that the basic background for coronary disease in general is arteriosclerosis. We consider it a progressive situation which can and frequently does pass through four definite cycles as follows:

1. Angina (Pectoris)
2. An Intermediary type
3. Acute Occlusion with infarction
4. Status Angiosus (Rare)

When we come to the indirect or activating factors however, we leave more or less firm ground for the devious paths of theory:

How important are alcohol and tobacco? Are Mental activities more predisposing than physical? Personally we have several firmly established convictions, to-wit:

1. Excesses of any and all kinds, physical, mental, gastro-intestinal, alcohol and tobacco are distinctly relatively important.

2. Heredity is all important. We cannot discount the story of the prematurely senile individual at fifty with his definite coronary picture who tells us he resembles both his father and paternal grandfather, both of whom died in their fifth and sixth decades of heart disease. And who has not encountered the reverse, the octagenarian with a smile and a twinkle and a sprightly step, who boasts of a long lived ancestry?

Types — 1. Angina Pectoris or Angina of Effort offers as a rule no diagnostic difficulties. The classical story of either severe precordial pain or in the absence of pain, pressure or dyspnoea coming on after effort or mental excitation, short-lived, lasting but a brief moment relieved with or without treatment and leaving the individual none the worse for his episode, referred classically down the arms or into the jaws, due we believe, to temporary coronary spasm or at least to a temporary insufficiency of the coronary flow.

2. The intermediary type is not so simple, either as to diagnosis or to explanation of the direct mechanism. Here we have the story of typical coronary pain and reference, coming on either after exciting cause or more confusingly while at rest, only partially or not at all relieved by nitro-glycerine or other coronary dilators and lasting not a few moments but hours. It differs from Angina Pectoris very materially therefore and yet can hardly be classified as an occlusion in

the absence of shock and all other manifestations associated with an acute infarction.

3. Acute Coronary Occlusion with Infarction. This dramatic type of coronary episode hardly calls for any diagnostic comment. If we remember its almost constant association with the usual symptoms and signs of shock, cold, clammy sweat, feeble, rapid and irregular pulse, its pallor and later resultant temperature rise, leucocytosis and electrocardiographic evidence of infarction, the picture is unmistakable.

4. Status Angiosus. Not too infrequently we encounter individuals, usually with the story of having run the gamut of coronary disease from repeated attacks of Angina of Effort, through the intermediary type, and into an occlusion with infarction until now terminally they are in constant pain whether active or at rest. They speak probably for a severe and pronounced degree of coronary sclerosis and a resultant narrowing of the coronary tree.

Prognosis: The outlook for the individual with coronary pain of the anginal type, on effort alone is certainly promising — with proper care. More grave is the outlook for the intermediary type, since it speaks for a more progressive coronary situation.

Both the mediate and immediate prognosis of acute occlusion with infarction has become less formidable in the past few decades. This is due probably to two factors, an earlier and more certain differential diagnosis and therefore more prompt, efficient and thorough management. Surely the mortality rate of at least twenty-five per cent only a few short years ago has dwindled to ten per cent or less.

When we come to theorize on the chances of the individual with a true status angiosus — optimism wanes and we must predicate or at least anticipate an uncertain outcome, and a short lived duration.

In conclusion, let me say to you, gentlemen — time forbids a consideration even in a superficial sense, of the big, broad subject of treatment of Coronary Disease. May I, however, give you this pertinent and personal admonition — Even as our earthly sun, as it approaches the horizon, yields its fiery noon-day redness to a mellow yellow, so may we as we reach the twilight of our lives, moderate our activities, slow our pace, furl our sails and sail calmly and peacefully into the harbor of senility.

IMMUNIZATION AGAINST COMMON COMMUNICABLE DISEASES

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Preventive medicine has made, and is continuing to make, such rapid strides, that certain protective measures against disease, which we regard with favor today, may be entirely inadequate tomorrow. This is entirely as it should be. Progress in the development of immunologic procedures is a flexible story of advancement.

While some of our present accepted measures may be of definite and proven value, others are almost of an experimental nature, yet worthy of continued trial and further biological and clinical investigation. Only large numbers of scientific and clinical reports covering thousands of adequate controls can definitely fix the value of the immunizing agent in question.

In discussing this subject today, it is recognized at once that all of the material involved has been previously reviewed and discussed in hundreds of more accurate and excellent papers. I will attempt, therefore, only a brief and practical review of the more widely accepted and commonly used methods of active and passive immunization against the commoner communicable diseases.

The elementary facts, concerning the protective action of the human organism, in response to various antigenic stimuli, are well known to all. These antigens may have been introduced into the living organisms by either nature, in the form of disease producing micro-organisms or by man in the form of specific antigens. In either case there is set up in the tissues of the host, a protective, offensive, or defensive mechanism which gives rise to the production of many types of antibodies, such as bacteriolysins, agglutinins, opsonins, precipitins and antitoxins. If the human organism, through its struggle with the invading micro-organisms or its toxins, is able to elaborate specific antibodies sufficient to overcome the invading agents, then recovery occurs and an active immunity is acquired by virtue of the laws of nature.

With the discovery of each specific causative agent of disease came attempts on the part of man to develop antibodies in the animal or hu-

man host, by introducing into the tissues of the host either the specific agent, in attenuated or killed form, or its growth toxins. These antibodies may be developed in lesser or greater amount and the resultant active immunity be accordingly of shorter or longer duration.

Passive immunity, in contra-distinction, except that of the newborn, is acquired by the introduction into the human organisms, of animal or human serum, containing antibodies already generated in the donor by either an attack of the disease or active immunization with specific antigens. Antitoxin for the purpose of passive immunization was first used in 1894 in the treatment of Diphtheria.

Little progress in immunization was recorded before 1913 when Von Behring introduced toxin-antitoxin as an immunizing agent in producing active immunity against Diphtheria. In a small group of human subjects, he conclusively proved the value of his agent in producing immunity in about 85 percent of those treated, using three spaced doses of 1 cc. each.

Bela Schick¹ in the same year developed a diagnostic skin test to determine immunity and susceptibility to Diphtheria.

In applying the Schick Test, the skin test dose of 0.1 cc. diluted Diphtheria toxin (1/50 M.L.D. for 250 gram guinea pig) is injected intradermally (not subcutaneously) into the skin of the forearm. An urticarial like wheal is raised. If the test is positive, denoting susceptibility, an area of redness .5 cm. or more in diameter develops within 48 hours and gradually fades over a period of the following two to three weeks. Pseudo reactions, due to the protein content of the toxin, appear within 12 to 48 hours and fade rapidly.

The Schick Test is practically unnecessary under six years of age since most individuals show a positive reaction under this age. In infants under five to six months of age and in some susceptible people the test may be negative yet they may acquire diphtheria. Older children and adults may require a control test using heated toxin to eliminate pseudo reactions. Repeated Schick tests should be done to prevent lapses of immunity and under any epidemic conditions. Routinely a Schick should be done three to six months after immunization is completed, again before entering grade school and high

¹Read before Section on Pediatrics, Ill. State Med. Soc., May 20, 1941, Chicago.

school. This applies to all children whether receiving toxoid injections in infancy or not.

By 1918, Park² and Zingher had introduced mass immunization of school children in New York City using toxin-antitoxin. Disadvantages of this method were soon apparent. Freezing temperatures surrounding the toxin-antitoxin mixture caused a disassociation of the components liberating lethal amounts of the toxin. A number of deaths from this cause are recorded. There was also the danger of sensitization or serum reaction in the human from the horse serum content.

Sheep or goat toxin-antitoxin is now used, but only in selected cases and especially in subjects over ten years of age. In practice it is given subcutaneously in 0.5 cc., 1 cc. and 1 cc. doses at two to four week intervals. Immunity develops slowly, sometimes requiring one year to produce a negative Schick test.

In 1924, Ramon³ introduced toxoid. This is produced by combining diphtheria toxin with various percentages of formalin. This product has proven more stable, easier of preparation and capable of producing a higher grade of immunity which is of longer duration, than the toxin-antitoxin mixture. This is still used and preferred by some clinicians. In children under ten years of age it is given in doses of 0.5 cc., 1 cc. and 1 cc. subcutaneously at two to four week intervals. For ages over ten years the dosage is reduced to 0.1 cc. then 0.2 cc., 0.5 cc. at similar or longer intervals. If reactions are not too severe an additional 0.1 cc. dose is given.

In 1926, Alum-precipitated toxoid was introduced by Glenny, Pope, Waddington and Wallace. This product was derived by treating diphtheria toxoid with aluminum potassium sulphate. The insoluble precipitate contains the antigen and the refined product has fifty percent less protein content than the Ramon toxoid. It also has the advantage of slower absorption, thus giving prolonged antibody stimulus. Early use of this product seemed to indicate that only one dose of 1.0 cc. was needed to produce 92 to 94 percent of immunity in Schick positive children. Further experience has led to the conclusion that one dose is insufficient to produce a prolonged or permanent immunity.

At the present time it is given to children under ten years of age in doses of 0.5 cc., 1 cc.

and 1 cc. at two to four week intervals. The longer interval being preferred.

Since sixty-five percent of diphtheria mortality occurs below the age of five, and eighty percent of all cases occur between six months and six years of age, it is highly desirable to immunize early in this period. Eighty-five to ninety-five percent of newborns give a negative Schick Test which persists up to six or nine months of life. The age of nine months seems desirable to start Diphtheria immunization. Some physicians suggest and practice smallpox vaccination at an earlier date — even three months — because of the non-specific enhancement of the following diphtheria antigen stimulation.

In 1935, Ramon⁴ and Frank and in 1937, Jones and Moss⁵ introduced the use of diphtheria-tetanus toxoid mixture for simultaneous active immunization against the two diseases. The two toxins given together act more effectively in the production of their respective antitoxins than if given independently. Reactions are slight, as a rule, except in older children, adults or allergic individuals. The particular appeal of this combined immunization is the fact of the additional protection provided, without additional effort.

The basic immunity thus established against tetanus will persist for years, and it has been demonstrated that it is possible to speed up tetanus antitoxin production in the exposed patient by giving an additional dose of tetanus toxoid, and to increase the titer to a point far in excess of that provided by the usual prophylactic dose of tetanus antitoxin. This can be accomplished within seven to ten days after administration of the stimulating dose of toxoid. It is advisable to recommend, however, that if there be doubt as to the status of the tetanus immunity of the patient or if the exposure be of a massive type, that the prophylactic dose of 1,000 to 2,000 units of tetanus antitoxin be given.

Two doses of 1 cc. each of the combined toxoid are given subcutaneously at intervals of two to three months. In older or allergic individuals the first dose may be subdivided in 0.2 cc., 0.4 cc. and 0.4 cc. doses at two to three week intervals.

Occasionally a sterile abscess may form at the site of an injection as a result of the presence of

alum, an insoluble substance, in the tissues. This is of infrequent occurrence.

What is the duration of the immunity against diphtheria provided by these various methods? Reports from various groups, tested over a period of one to five years, vary as widely as the methods. Certainly, results with the use of alum precipitated toxoid in adequate doses and at proper intervals, have shown higher and more prolonged immunity.

Julius Sigurjon'sson⁶ reported in October 1939, on a group of Schick tests done eight months and four years after two injections of Alum-precipitated toxoid. After eight months, 95.4 percent were Schick negative. After four years, only 66.3 percent were negative. The Ramon toxoid gives lower immunity duration. After eight months, 80.7 percent and after four years, only 26.12 percent were Schick negative.

Whatever the type of agent selected by the physician, the necessity for repeated Schick tests at routine age periods is apparent.

Convincing evidence of the value of active immunization against diphtheria is shown in the decline of the mortality rate for this disease. In 1923, the rate was 13.13 per cent, and by 1937, the rate had fallen to 1.46 percent according to the vital statistic records of the United States.

Passive immunity may be given to non-immunized or Schick positive exposures by injecting intramuscularly 1,000 to 2,000 units of Diphtheria antitoxin. This is an undesirable procedure — except in unusual circumstances where the exposed patient cannot be kept under close observation. The use of animal serum carries with it the ever present possibility of sensitization to foreign protein and the immediate, accelerated or delayed serum reaction.

SMALLPOX: — Dr. Jenner was the first to demonstrate the possibility of active immunization against this disease when he introduced vaccination against Smallpox. He transferred the contents of a cowpox pustule on the hand of a milk maid to a scarified area on the arm of a child, thus producing a vaccination and immunity against the scourge of smallpox.

Of the many types of vaccine and methods of application, that of the U. S. Public Health

service is recommended. This is the multiple puncture method using calf vaccine smallpox virus and is as follows: —

The skin over the insertion of the deltoid is first cleansed and sterilized (preferably with acetone). Through a droplet of the vaccine on this area, five to ten punctures are made with the sterilized needle, care being taken not to puncture so deeply as to cause bleeding. The excess of vaccine is wiped off with sterile gauze. No dressing, shield or protective mechanism is applied. A primary "Take" begins in three or four days with a macula at the site of puncture gradually passing through the stages of vesiculation, and pustulation by the seventh to ninth day. Local systemic reactions may and usually do occur at the height of the "Take", but subside rapidly. Scabbing follows and by the end of the third week a moderately depressed scar results. A "vaccinoid reaction", showing the presence of partial immunity, is an accelerated take which passes through all stages and subsides within a few days, often subsiding before pustulation occurs. A "reaction to immunity", indicates either previous successful vaccination or immunity. Local induration and erythema occurs at the site within 24 hours, then complete subsidence. Vaccination may also be carried out by cross scratching or scarifying of the skin and rubbing in of the vaccine. To apply the vaccine intradermally the contents of a capillary vaccine tube is drawn into a hypo needle diluted up to 0.2 cc. with normal saline. One tenth of a cubic centimeter of this mixture is then injected intradermally in the same manner as in doing a Schick test. A similar sequence of vesiculation, pustulation, etc., occurs.

The age for vaccination is frankly any time from birth on, preferably before the age of three, since post vaccinal encephalitis rarely or never occurs before that age. Many clinicians recommend vaccination at three months or before giving pertussis and diphtheria immunization on account of the tendency of smallpox vaccinations to accelerate immunity of later immunizations.

Revaccination is recommended by the U. S. Public Health service at intervals of five to seven years until three successful takes are recorded. Revaccination at six and twelve years of age and in all susceptibles immediately on exposure should be routinely recommended.

Chick Embryo Smallpox Vaccine Virus as artificially grown by Goodpasture and Rivers has been used with certain claims of superiority, namely (1) that its purity is assured by growth in vitro (2) Systemic reactions are mild and (3) that no scar results when used intracutaneously.⁷

The objection that lack of scar would leave no objective evidence of a successful vaccination is countered by the fact that the presence of a scar does not always mean immunity to the disease. A vaccination scar should be regarded, however, as a badge of good citizenship and a mark of good judgment.

SCARLET FEVER: — Active immunization against Scarlet Fever has never been as popular nor enjoyed such extensive use as some other types of immunization. To be generally accepted and energetically used, a product should promise not only reasonably effective results, but also require few doses and freedom from marked reactions.

The Dick Test for susceptibility to Scarlet Fever was introduced by Drs. George F. and Gladys H. Dick. It is not 100 percent accurate, although a positive test indicates susceptibility in all but a small number of susceptible individuals. The Dick Test is done by injecting 0.1 cc. of diluted scarlet fever Dick Toxin intradermally in the same manner as the Schick Test. The positive reaction is denoted by an area of redness 0.5 cm. or larger at the site of injection. Even if faintly red it is regarded as positive and denotes susceptibility to scarlet fever. The test is more transient than the Schick Test and should be examined in 24 hours.

A positive reactor to the test may be rendered negative by five subcutaneous injections of scarlet fever toxin at weekly intervals. These doses range from 650 up to 120,000 skin test doses. Reactions today, on account of further purification of the product, are not so frequent, yet one or more of the higher dosages may cause marked systemic or local reactions. This adds nothing to its popularity with the general public. A Dick Test should follow immunization one week after the last dose and whenever exposure occurs.

In the thus apparently immunized individuals we have no assurance that the toxic effect or the invasiveness of the streptococcus *Scarlitinae* are in

any way altered. Dr. J. A. Kolmer⁸ has suggested the possibility of combining the five doses of toxin with a *Streptococci Scarlitinae* Vaccine, thus engendering antibacterial as well as antitoxic immunity.

The use of Scarlet Fever Toxin among nurses, doctors and inmates of child caring institutions has been recommended and used by many well informed investigators and clinicians in preventing the spread of scarlet fever to epidemic proportions. Before offering it to private patients, however, it is well to acquaint them with the possibility of reactions and the uncertainty of its beneficial results. In any case, is not to be given before the individual is from one and one-half years to two years of age.

For passive immunization against Scarlet Fever, the use of pooled convalescent serum is rapidly showing great possibilities. Given in 10 cc. doses to small children, 15 cc. for larger children and 20 cc. for adolescents and adults, Scarlet Fever is said to be prevented in 97 percent of all children and 85 percent of susceptible children. These results will naturally depend on the quality of the pooled serum and host resistance. It is entirely safe in administration.

The use of the sulfonamides as a prophylactic measure is controversial, the synergistic action, however, of both serum and sulfonamides, in treatment, has received favorable comment.

Whole adult blood and adult serum are of such fluctuating quality as to antibody content and require such large doses (80 to 100 cc.) that their use is limited.

Commercial Scarlet Fever antitoxin of animal origin, may be used in emergencies and under special circumstances. The immunity supplied is of short duration and has frequently in the past been associated with severe serum reactions. Recently several biological laboratories have produced more purified and more potent types of antitoxin (5,000 to 6,000 units per cc.) which are said to cause fewer reactions.

The Schultz-Charlton blanching test for diagnosis of Scarlet Fever is performed by injecting 0.5 cc. of scarlet fever antitoxin or convalescent serum intradermally into an area where the rash is most marked, preferably the lower abdomen. Read in 12 to 14 hours, a blanching at the site of injection is considered as positive. It is generally accepted as due to the local effect of the

antitoxin on the toxin. The limitations of this test are as follows: (1) A negative test does not rule out Scarlet Fever. (2) A papular type rash cannot be blanched. (3) It is useless where the rash is more than three days old (some workers report negative Dick & Schultz-Charlton tests even during the first two to three days).⁹ Dr. Wm. Thalhimer,¹⁰ using 1 cc. convalescent serum, states that the test is "extremely reliable in differentiating between scarlet and other rashes."

CHICKEN POX: — Chicken pox, while considered as more worrisome than serious, is not always a mild disease — particularly when associated with another disease such as Scarlet Fever or where resistance has been lowered by some other major infectious process or illness.

Active immunization with the vesicle fluid was suggested by Kling in 1913. Cooke, Hess and Unger have proven this as unreliable and offering less success in definite exposure than passive immunity. The fact that the vaccination actually produces a mild case of chicken pox which is in itself infectious, defeats its purpose. Convalescent serum prevention of chicken pox was introduced by Blackfan et al.¹¹ Of one hundred sixty-seven immunized, 13 percent developed chicken pox.

Convalescent Pooled Serum is given in 10 cc. doses intramuscularly. The donor or donors must be less than three weeks convalescent and the serum must be given within three days after exposure to be at all effective. The actual protective value varies from 91 percent to 35 percent depending on the quality of serum and time interval between exposures and injection.¹² No severe reactions are reported. The scarcity of such serum makes its wide use impractical.

MUMPS: — Mumps may not always be a disease of low morbidity and negative mortality if such complications as Meningo-encephalitis are taken into consideration. Tabor and Newman of New York have collected twenty-nine of these cases.

No method of active immunization is known. Convalescent Serum in doses of 8 to 20 cc. have been given intramuscularly but available statistics have failed to substantiate its beneficial effects.

MEASLES: — On account of the high mortality of this disease (2.6 percent for ages 1 to 5), the high communicability, and frequency of complications, such as pneumonia; there has been a large amount of investigation done in search of the specific agent and effective immunizing measures. The etiologic agent is not yet identified but the virus nature of the disease is rapidly being accepted.

The immunity of the newborn for measles is mostly passive and extends upwards to five months of age, after which an increased susceptibility to the disease begins and continues thru childhood.¹³

Lasting natural immunity is rare and is even denied by some authorities. To the present time the only known method of acquiring lasting immunity is to have the disease in its acute or modified form. Home, of Scotland, attempted to immunize by injection of whole human blood, two hundred years ago.

Passive Immunization of exposed individuals is done largely to modify the disease to the extent of allowing the individual to develop an active "earned" immunity equal to that acquired by an active unmodified attack, yet without the danger of complications so often seen in the unmodified disease. The permanency of such immunity is, however, unknown. In isolated cases it may be advisable, to attempt to entirely prevent the disease, e.g., where the exposed individual is already in a debilitated condition.

Measles modification is carried out by the injection of convalescent serum, adult immune serum, whole blood, and placental extract. Of these methods the use of 5 to 10 cc. of Convalescent Serum intramuscularly five to nine days after exposure or one to two days after the rash has appeared in the contact case, have been most successful in preventing or modifying the disease.

Placental Immune Globulin (Human), introduced in 1933 by McKhann¹⁴ and co-workers, is given intramuscularly in doses of 2 to 10 cc. depending on time interval after exposure, intimacy of exposure and age of the patient.

Results vary from complete failure to modify, prevent, or delay the symptoms; to a modified attack or complete protection.

The modifying action or protective value of adult immune whole Blood or adult immune

serum has proven of little value in either lessening the severity of the disease or in reducing the percentage of common pulmonary complications.

Morales and Mandry¹⁵, at San Juan, Porto Rico in a measles epidemic in June 1928-1929, had an unusual opportunity to test the value of convalescent and adult immune serum. All cases were of familial contact. Working as health officers, with authority, they entered the homes of all cases and exposures. They gave 120 doses of convalescent serum, and 393 doses of immune adult serum to five hundred children under fifteen years of age and over six months of age, using one hundred and eighty-three children in the same families as controls.

Four to six cc. of convalescent serum and ten to forty cc. of adult immune serum was used, reactions occurring in only two of the cases.

Complete protection resulted in 85 percent of those receiving the convalescent serum and in 57.8 percent of those receiving the adult immune serum while 18.6 percent of the controls did not develop the disease. In the attenuated cases there was a moderate temperature rise to 102° F., lasting 24 to 48 hours, the rash appeared one to four days after the injection, showing no erythematous patches and the coryza symptoms were mild. No complications occurred in any of the immunized cases.

Recently an anti-measles vaccine prepared from measles virus grown on fertile hens eggs has been produced by Dr. Geoffrey Rake and Dr. Morris F. Shaffer.¹⁶ Its use at the present time is in process of clinical experimentation.

PERTUSSIS: — Pertussis differs from other contagious diseases of childhood in the fact that 85 to 90 percent of the mortality occurs before the age of three. Under the age of one year the mortality in the non-immunized group may reach 20 to 35 percent. Under the age of five years the mortality rate is greater than that of diphtheria, measles, scarlet fever and poliomyelitis combined. In six consecutive years, the U. S. Public Health Survey, records 42,655 deaths in the United States from this disease alone.

Congenital immunity is probably rare although natural immunity among adults who have never had the disease is more or less common.

There has been an increasing interest and demand by the lay public for protection against this disease. To this end vaccines of various types

and dosages have been used for the past decade. Medical literature is crowded with conflicting reports of their efficacy.

Madsen, in 1929¹⁷, and Sauer¹⁸, a short time later, developed and used potent strains of *Hemophilus Pertussis* Bacillus Phase I, as vaccines in active immunization. The latest Sauer Vaccine is standardized at 15,000 million organisms per cc. and is used as follows: 2 cc., 2 cc. and 3 cc. are injected in alternate arms or 1 cc., 2 cc. and 4 cc. The last dose divided, 2 cc. into each of two previously unused skin areas. An interval of three weeks between doses is recommended. Local and systemic reactions are described as "negligible", particularly after the first two doses.

The eighth month of life is recommended as the proper time to start these immunizations. Used in the early months of life (before the third month) it has produced insufficient antigenic response to protect against the disease.¹⁹

Double strength vaccines containing 20,000 million per cc. have also been used reducing the number of weekly injections to three, 1 cc., 1.5 cc. and 3 cc. totaling 80-100,000 million pertussis organisms. Opinion differs widely on its usefulness on account of the possibility of increased local reactions. Another commercial laboratory has further concentrated the vaccine to three single weekly doses of 1 cc. containing 20 billion, 40 billion and 60 billion organisms respectively.

Sauer states that immunity develops slowly. Madsen thinks it develops rapidly. Clinical experience has shown that about four months must elapse before anything approaching complete immunity will develop.

Less than a decade ago the total dosage was from three to five billion organisms, now investigators and clinicians feel, that total dosages of from eighty to one hundred and twenty billion are necessary for effective immunization.

There is no practical method of testing the effectiveness of Phase I Pertussis Vaccine, the duration of its protective action or its rate of decline except by clinical observation. Intensity of exposure, type and potency of vaccine, age at immunization and exposure, etc., are all variable factors which act to confuse statistics.

Repeated yearly stimulating doses or additional doses in case of exposure have been recommended. Allergic reactions and foreign protein

sensitization are not to be feared.

Blatt, in 1938,²⁰ working with a Pertussis Vaccine modified by formalization and used intracutaneously or subcutaneously in total dosage of 30 billion organisms found that this agent proved effective in prophylaxis. Kruegers Endo-antigen, a toxic Filtrate of Phase I Pertussis Bacillus detoxified with formalin, has been used both prophylactically and therapeutically. For prophylaxis 1 cc. then 1.5 cc. are given subcutaneously on alternate days for six doses. It is not yet of proven value.

Pooled Convalescent Serum in 10 to 20 cc. doses intramuscularly in exposed non-immunes has been used. To date the general inavailability of this serum has restricted its use. Available statistics give no definite proof of its value.

Kendrick and Randall, taking adults with a definite history of childhood pertussis, inoculated them with a course of seven to twenty cc. total dosages of Pertussis vaccine over a period of weeks. The blood from these individuals gave a hyper-immune serum of high opsonic index. The difficulties of production and distribution of such a serum makes its general use prohibitive. Immune Rabbit Serum Globulin is still under experimental investigation. Other vaccines, filtrates and endo-antigens have also been used in treatment but their value seems out of proportion to the pain and general discomfort occasioned by the multiple injections required.

POLIOMYELITIS (Infantile Paralysis): — Several agents have been offered and tried in active immunization against poliomyelitis. In 1934, Kolmer²¹ introduced a vaccine believed safe and effective for active immunization against the disease. This vaccine contained the living but attenuated virus of poliomyelitis. With the courage of conviction he allowed himself, his assistant and his own children to be given the vaccine, and without harmful effect. Later almost 11,000 subjects were so vaccinated.

Unfavorable criticisms resulting from the occurrence of several fatal cases of the disease developing shortly after the administration of the vaccine halted its further use.

The Park Broder vaccine prepared from killed virus was also discarded as of doubtful value, even though safe. Toomey²² summarizes the vaccine situation well when he states "Vaccine

antigens must be safe, thus they cannot be viable and paradoxically if they are not viable they seem to be of no value."

Bacteriologic studies of the disease by Dr. E. C. Rosenau of the Mayo Foundation have disclosed a pleomorphic green-producing streptococcus, isolated from all of his patients in various stages of poliomyelitis. With this organism he has produced an animal antitoxin which he has used with results which he considers equal to those obtained with pooled adult immune serum. The dosage recommended is 2 cc. for children under two years of age, 10 cc. from two to five years; 15 cc. from five to ten years and 20 cc. for subjects over ten years. These doses to be repeated every 24 hours depending on necessity. Since this is a horse serum its use carries with it all the precautions regarding hypersensitivity and sensitization.

Nasal sprays containing such agents as Zinc Chloride, Tannic Acid, etc., have not proven efficient in prevention and may even exert harmful effects. Pooled Convalescent Serum in doses of 10 to 20 cc. intramuscularly when used under epidemic conditions for passive immunizations gave no corroboration as to its value. Flexner considered it of value in time of epidemic and when given to children exposed to the disease.

This serum is now generally available through the Illinois Health Department Laboratories and is used both for passive immunization and treatment. The case for convalescent serum is however far from convincing. It is administered in 25 to 100 cc. doses intramuscularly or intravenously without fear of local or general reactions. Intrathecal it is not recommended.

In general we may justly conclude that for the present there seems to be no adequate means of specific immunization or treatment either in the control or after the disease has developed.

TYPHOID FEVER: — Typhoid immunization is recommended at eight to twelve years of age or at any time for which occasion may arise. Immunity seldom persists over two years and is never absolute. Typhoid-paratyphoid vaccine is given subcutaneously in doses of 0.5 cc., 1.0 cc. and 1.0 cc. at weekly intervals.

Re-injection of 1 cc. yearly will stimulate the agglutination titer of the already immunized individual.

The routine and recommendations by which these various immunizations may be administered will be subject to the personal opinion of the clinician and the physical condition of the patient. In general the time and method might be as follows:

- (1) Vaccinate against pertussis at six to eight months. The Sauer type vaccine may be used in all three strengths, 8 cc. of the 10 billion per cc., 7 cc. of the 15 billion per cc., or 5 cc. of the 20 billion per cc. These total doses to be divided in three separate doses administered preferably at two to three week intervals.
 - (2) Immunize against Diphtheria between eight and twelve months. The combined Diphtheria-Tetanus Toxoid may be used and seems to be a sensible procedure. Three doses at two week intervals to the amount of 0.5 cc., 1 cc. and 1 cc. seems practical. Schick and re-immunize if and when necessary.
 - (3) Do a Schick Test three months after Diphtheria immunizations, again at five to six years of age or during epidemic periods and re-immunize if Schick Test is positive. Remember that even vaccinated Schick Negative individuals may sometimes be carriers.
 - (4) Vaccinate against Smallpox at any age if exposure or necessity requires it, but routinely between three to twelve months. Revaccinate before entering school at six years and again at puberty. Calf lymph vaccine by the multiple puncture method, without shields and during the colder months if possible, is recommended.
 - (5) Scarlet Fever Toxin in 650; 2,500; 10,000; 30,000 and 100 to 120,000 Skin test doses may be given at weekly intervals followed in one week by a Dick test. Routinely it should not be administered before eighteen months of age and preferably at two or three years.
- Under epidemic conditions and in large groups or in child caring institutions its use is more specifically indicated. The duration of this antitoxin immunity is variable and is no guarantee against invasion of the streptococcus *Scarlitinae* itself.
- (6) In co-operation with a nation-wide "Case Finding" effort to eradicate tuberculosis, a

Tuberculin Test should be done on children at three years of age and possibly every third year to puberty.

- (7) Typhoid Vaccine subcutaneously in doses recommended may be given when and where indicated.
- (8) Measles Convalescent Serum in prophylaxis and modification of measles offers good chances of success and its use should be extended. Placental Immune Globulin Human may also be tried. The use of Poliomyelitis Convalescent Serum both prophylactically during epidemics and therapeutically may well be continued until replaced by a more perfect agent.

The chief problem which confronts the physician today, in administering any form of immunizing treatment is not whether he can give absolute or lasting immunity to his patient, but rather, whether he can give sufficient protection to be of practical value. From ten to fifteen percent of failures are to be expected, yet even among these so called failures, the disease may be less severe and have fewer complications. This is frequently the case among those who have failed to obtain complete protection by pertussis vaccine.

Working in this manner, with an ever expanding armamentarium of immunizing agents and always within the bounds of safety, physicians can continue to render valuable aid to their communities in the ultimate elimination of contagious diseases.

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DISCUSSION

Dr. W. L. Crawford, Rockford: Dr. Maurer has summarized well the common practices of immunization against contagious diseases. Little additional information can be brought to your attention but I think that emphasis on a few points from the standpoint of private practice might help crystallize a few things in the minds of younger men and some who have not standardized their office routine procedure.

For fifteen years in immunizing for diphtheria and smallpox, we have followed a routine that has not been necessary to have changed. At first with toxin-antitoxin and later with toxoid we have made it a routine practice to give these diphtheria injections to infants at around six or seven months. We give three injections and never use less than 3 c.c.'s of toxoid. It has been our custom to give a half c.c. at first, 1 c.c. the second injection and 1½ c.c.'s the third time. I know this dosage works. We recheck our children every four or five years and at those ages I know that they develop enough antitoxin to keep the Schick test negative and to maintain it over a number of years.

We vaccinate against smallpox at the same time that we give the second diphtheria injection. This enables us to have an opportunity to see how the vaccination is working when the child gets the third diphtheria injection.

The doctors attitude towards pertussis immunization is changing. We now know that infants in the first months of life do not develop good anti-body protection against pertussis. Drs. Sauer and others have recently reported records and followups of a great many hundreds of children given pertussis immunization in different years and different months and I think the pendulum is now definitely swinging to the administration of pertussis vaccine in the second half of the first year rather than in the first half. I think that in the past our dosage has been too small and it has been increased in recent years with much better protection against pertussis.

Dr. Louis Sauer, Evanston: Based on complement fixation tests and retests on about 800 children of various ages it was found that the earliest age at which the vaccine is likely to confer protection is probably after the seventh months of life. The three-week interval was found to yield a higher incidence of 4-plus complement fixations than the weekly interval between the three injections. We now recommend the three-week interval. It was found that it was not necessary to have an interval of several months between pertussis and diphtheria immunizations.

In 1928, when we began to inject our special H. pertussis vaccine for immunization, Dr. Hektorn advised that we use human blood in the culture

medium because it would be safer than animal blood. Without animal protein, sensitization of the infant would also be avoided. From 1934 to date we have had a total of 59 failures (private practice, Evanston Health Department Clinic, and at St. Vincent's). Over 80 per cent of these failures occurred in children injected with vaccine made before 1935. Vaccine made since 1935 has given good protection. The concentration of choice is the new Authorized 15,000 million per cc. vaccine. Additional precautions in its preparation and administration have been added. Local and systemic reactions are less likely to occur when the 15,000 million vaccine is injected at three-week intervals just under the skin of the upper arm in the region of the deltoid insertion. A subcutaneous lump should be seen when the needle is withdrawn. If fever occurs it will respond promptly to aspirin. Nothing is applied locally when a local reaction occurs.

Dr. Maurice L. Blatt, Chicago: In the field of active immunization, those of us who are caring for children have every opportunity to institute these protective measures. The number of adults who consult a physician for such immunization is much smaller, but many parents accept the fact that active protection of their children against infection is desirable.

Anti-pertussis rabbit serum has recently been introduced for research purposes. We are using it for passive immunization. It has given us excellent results so far. We have been able to protect contacts and reduce the severity of the disease in infected children.

One thing which we have neglected is active immunization of both children and adults against tetanus. I want to call your attention to the fact that 24 cases of active tetanus were admitted to the Cook County Hospital during 1939 and 1940. Nineteen per cent of them died in spite of our excellently organized team for the treatment of these cases. Only one of these had had antitoxin prior to admission and only two had consulted a physician because of the injury, resulting in tetanus. It is apparent from these figures alone that only active immunization would protect against tetanus resulting from injuries so slight as not to receive medical attention. In our series, the injuries were so minor that 80 per cent of the patients did not seek medical care. We are in a war at the present moment and in our army tetanus toxoid is not routinely used. It is used by our Naval Academy. In a paper to be published in the *Military Surgeon* in the near future, I have advocated its use and hope to influence our army to follow the example of the Spanish, English and the Italians who do inoculate their soldiers. We in private practice can do much to reduce the incidence of tetanus by inoculating the children.

I hope that pediatricians will lead in the introduction of tetanus toxoid as they have lead in the use of diphtheria toxoid and other agents for active immunization.

Dr. Archibald L. Hoyne, Chicago: Among the many important procedures discussed in Dr. Maurer's

paper it seems to me one of the most vital in connection with diphtheria is the use of the combined toxoids. I think eventually everyone will be immunizing against diphtheria by means of the diphtheria toxoid plus tetanus toxoid. In this way, one can immunize against two diseases at the same time and in addition the antigenic response is greater to each toxoid when given in combination than when either one is used alone.

In regard to the whooping cough problem, it has seemed to me that the younger infants could be given Dr. Sauer's vaccine before the age of six months; for even though the antigenic response may not be good, possibly some reduction in the degree of susceptibility would result.

We know that most of the infants who die from whooping cough are under one year of age. Consequently, if immunization is not undertaken before the second half year of life the very group which needs protection most does not receive it. For example, during 1938 there were about 10,053 cases of whooping cough reported in Chicago. Among that number there were 66 deaths and all but one of the fatalities occurred either in Municipal Contagious Disease or in Cook County Hospital. By far the larger majority of hospitalized patients were cared for in the former institution, where none was admitted who was more than one year of age. For many weeks the daily average of such patients was approximately 100. Although the general fatality rate was low most of the deaths that took place during the epidemic occurred in Municipal Contagious Disease Hospital, and consequently were among patients under one year of age.

If vaccine were given during the first few months of life I wonder if it might not modify the disease even if it did not prevent it. If such were the case the infant who might ordinarily die, would perhaps survive, and in this way mortality from whooping cough in infancy would be reduced.

Dr. Frederick H. Maurer, Peoria (in closing): In the first place I would like to thank the Doctors for their generous and undeserved discussion.

Dr. Crawford emphasized how different is the situation in administering immunizing agents in private practice than in regular hospital routine and the necessity of the practical application of immunizations. It is not always possible to have your patients coming in at the intervals at which you want them. You may have to space immunization treatments so that you can give them in connection with your general examinations. Also he mentioned the point of giving sufficient dosage of these agents without producing any harmful effects. That is quite a good point. He specifically advocated the use of 3 c.c. of the toxoid, instead of 2 c.c. He also brought out the point concerning the increased mortality in the younger infants. Dr. Hoyne also emphasized our inability to immunize at the earlier ages, when this protection is most needed.

Dr. Sauer pointed out that the time interval between diphtheria and pertussis immunizations may be short. I routinely do this with my patients.

Dr. Blatt spoke of the rabbit immune serum, which I believe is only in the stage of clinical experimentation. I have also mentioned in this paper, Dr. Blatt's work in 1938, on the use of a filtrate of the pertussis organism in immunization, with which he has obtained some very encouraging results.

The subject of tetanus toxoid immunization in connection with diphtheria is an important one. I think this should be practiced routinely by all physicians but I wish to sound here a note of warning in depending too much upon the protective effect of the toxoid in this procedure. Massive exposure to tetanus infection should have the additional protection of a prophylactic dose of tetanus antitoxin.

Dr. Hoyne spoke of immunizing youngsters against whooping cough before the age of six months because of the possibility of adding somewhat to their protective resources. This is a good idea, since even partial immunity may modify the disease and prevent the commoner pulmonary complications.

I wonder whether, as time goes on, and we immunize all of our potential mothers, we will produce more or less of a "hyperimmunity" in the blood of these mothers which might be passed on to their infants protecting them for five or six months after birth.

THE DORSO-LUMBAR SYNDROME WITH SPECIAL REFERENCE TO REFERRED PAIN

FREDERICK W. SLOBE, M.D., F.A.C.S.

CHICAGO

The frequency with which fibrositis occurs in the mid-back (dorso-lumbar region) is not sufficiently recognized. Such pathology quite commonly gives rise to characteristic referred pain and the combination may well be called the "dorso-lumbar syndrome" to distinguish it from the frequent "sciatic syndrome" associated with low-back involvements.

The literature is replete with articles dealing with low-back pain and the sciatic syndrome but relatively few articles emphasize the frequency of dorso-lumbar involvement. One reason for this, no doubt, is because patients with low-back pathology are usually acutely aware of pain in that region, subsequent sciatic radiation frequently being a secondary manifestation; less often, the sciatic pain appears as the initial complaint, the

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actual back symptoms being either latent or not demonstrable. The reverse situation obtains in the mid-back, instances of prominent referred pain with latent back symptoms or findings being more frequent than instances where the back symptoms predominate. Another reason for the lack of attention paid to the dorso-lumbar syndrome is that sciatic radiation as a symptom-complex does not give rise to many errors in differential diagnosis (though it is often very difficult to establish the exact site of the pathology) whereas the referred pain emanating from the dorso-lumbar region, being less well understood and publicized gives rise to frequent errors in diagnosis. When a pain shoots down the back of the thigh, everyone immediately thinks of sciatica but when the pain is felt in the lower abdomen and groin, attention is often mistakenly focused on various intra-abdominal or other nearby structures as being the seat of the trouble.

It is not within the scope of this paper to dwell upon the pathology in the mid-back responsible for these referred pains. No doubt, some form of fibrositis usually exists — the term “fibrositis” being used for lack of a better term to include myositis, fascitis, peri-arthritis, arthritis, etc., in fact, any inflammatory or degenerative affection involving the muscles, fascia, ligaments, periosteal insertions, joints, and nerve-sheaths. Any infiltration of these structures may be at fault, whether caused by infection, toxemia, or metabolic disturbance. Usually, the abnormal process is insidious until, with dramatic suddenness, acute pain is experienced. Such acute episodes may indicate an anoxia from vascular spasm, perhaps secondary to local nerve irritation and altered local tissue metabolism. Being often initiated by a strain or twist (sometimes severe, frequently very slight) it appears not unlikely that a torn adhesion or a stretching of tissue whose mobility and elasticity have been diminished by previous inflammatory or toxic infiltration may cause a local nerve irritation which acts as a “trigger” zone. Just as a cartridge waits for the trigger to explode it, so these infiltrated areas, often symptomless before, await some precipitating factor to set off the explosion. This factor is often a strain, sometimes merely a slight movement.

It is logical that the dorso-lumbar region is a frequent site of pathology, because it is a highly

mobile part of the spine subject to much stress and strain (the frequent site of compression fracture in this region being ample proof of this). Obviously, the soft tissue structures in this area are subjected to continual stress, especially in those who are physically active. Most of the factors that operate to make the lumbo-sacral region a vulnerable area make the dorso-lumbar area vulnerable also.

The symptomatology is illustrated by the following case reports:

CASE I. — A man, aged 59, while lifting a 200 pound pipe felt a sudden sharp pain in his left lower abdomen, groin, and testicle. He felt weak and walked with difficulty. The pain soon became so severe that he showed symptoms of mild shock. He was sent to the hospital where the examining physician was suspicious of a strangulated hernia because of a soft mass in the left side of the scrotum. Palpation of the scrotum was difficult because of marked tenderness. The mass proved to be an old, small hydrocele. There was tenderness over the left lower abdomen and the skin felt numb when pinched over this area. There was muscle spasm and rigidity of the dorso-lumbar erector-spinae muscles with local tenderness opposite the 1st lumbar vertebra. However, the patient did not complain of pain in his back.

Diagnosis: Referred pain from dorso-lumbar fibrositis, involving the posterior soft tissue structures on the left side. Eucupin in oil was injected paravertebrally around the 12th dorsal and 1st and 2nd lumbar nerves. This caused marked relief of pain, though some tenderness persisted. Of interest is the fact that X-ray examination showed marked spur formation on the lower dorsal vertebrae but relatively little on the lumbar vertebrae.

CASE II. — A hospital orderly, aged 19, on September 23rd, 1940 began to notice pain in his left groin while lifting patients, although no specific strain was recalled. On October 13th, while lifting a patient, he felt severe pain in his left groin which continued through the week. On October 17th while scuffling with fellow-employees, one of them jerked his leg causing an acute increase in the pain, together with slight nausea. Tenderness in the left groin was so marked, palpation was difficult. The examining physician was fearful of a possible small incarcerated hernia. However, the external ring was tight and no hernia was demonstrable. No pain in the back was complained of; however, tenderness was demonstrated over the erector-spinae muscles in the dorso-lumbar region. Impaired sensibility was present over the left lower abdomen over a zone about 3 inches wide above the inguinal ligament.

Diagnosis: Dorso-lumbar fibrositis with referred pain. Local heat and massage afforded relief, the condition disappearing in about three weeks. This young man was a lanky individual with postural im-

balance which apparently caused postural strain with a super-imposed acute episode.

CASE III. — A young man, aged 22, while supporting a heavy bale which started falling from a truck, felt a sudden snap in the extreme lower part of the left side of the abdomen. He said the skin of the abdomen felt as though it were "stretched." He was slightly nauseated three hours later and also developed pain in his left testicle. Additional history disclosed that his back had been sore at intervals for several months after heavy lifting.

Examination revealed small incomplete hernias on both sides. Coughing did not aggravate the pain. The left testicle was tender. Deep pressure elicited tenderness over the extreme lower part of the left side of the abdomen, the extreme upper and medial part of the upper thigh, and over the upper half of the left buttock. Skin pinching was more acutely felt over these areas than on the opposite side. Tenderness was also present over the left dorso-lumbar region opposite the 12th dorsal to the 3rd lumbar vertebrae and also along the lower margin of the 12th rib. An injection of 2% procaine into the area of muscle tenderness caused a definite diminution of the pain and tenderness. The patient continued working but as some pain and tenderness persisted, 5 c.c. of eucupin in oil was injected para-vertebrally around the 12th dorsal and 1st lumbar nerves with decided relief. This man had inequality in the length of his legs, the right being $\frac{3}{8}$ of an inch longer. Chronic postural strain seemed basically responsible, the added strain of lifting the bale causing an acute exacerbation. This is an instance of hernia being purely co-incidental with no bearing on the complaints, though in such instances often incorrectly so considered.

CASE IV. — A man of 58 slipped while lifting a heavy bag and in trying to keep the bag from falling, felt sharp pains simultaneously in both the left testicle and middle of his back. The left testicle was acutely tender but neither inflamed nor swollen. Beginning bilateral direct hernias were present. Coughing caused no increase in the pain. A local area of tenderness was present over the 1st lumbar spine and the contiguous inter-spinous areas above and below. An injection of 2% procaine in the tender site around the spinous process caused simultaneous disappearance of both the testicular pain and the back pain in fifteen minutes. This man had a rigid spine from old osteo-arthritis. The local area of fibrositis acted as a "trigger" zone causing referred pain to the testicle. The hernias, again, were purely incidental.

The soft tissues posterior to the spine are supplied by the posterior divisions of the spinal nerves and zones of irritation in that region seem to cause a reflex referred pain down the anterior divisions of the spinal nerves. In the posterior structures of the low-back, radiation extends down the sciatic nerve, whereas in the dorso-

lumbar region it most commonly radiates down the 12th dorsal and 1st lumbar nerves.

The sensory distribution of the 12th dorsal and 1st lumbar nerves has been demonstrated by Judovich and Bates to include an area of the lower abdomen three inches wide parallel to the inguinal ligament and a corresponding area of the upper thigh one and one-half inches wide which broadens over the medial upper thigh surface and the scrotum; posteriorly it includes the area bounded medially by the sacro-iliac joint, below by the level of the great trochanter and above by a slanting line well superior to the iliac crest. It should be noted that this zone encroaches upon both the sacro-iliac and lumbosacral areas.

The acute pain over the area of reflex distribution is so predominant that most patients make no mention of any recent back complaint. It requires close questioning to elicit an admission of recent soreness in the back and not infrequently there is absolute denial of any such previous trouble. In either event careful examination by digital pressure usually elicits a tender area over the dorso-lumbar region of the involved side, usually from 2.5 to 5 centimeters from the mid-line. More rarely, it may be directly over or between the spinous processes, or even in the tissues caudad to the 12th rib. At times, no tender area exists and here, no doubt, the seat of the pathology is too deep to be palpated.

At the onset, the pain is often severe, later subsiding to a dull ache as the condition improves. Being a typical reflex, referred pain it cannot be classed as a true neuralgia, though it has some neuralgic characteristics and if the term "sciatic neuralgia" is justified this condition may similarly be termed as neuralgia of the 12th dorsal and 1st lumbar nerves, which are most often involved, though it may include any or all of the nerves from the 10th dorsal to the 3rd lumbar. The trigger zones usually lie in areas of soft tissue irritation in the posterior structures. That the initiating focus may lie in the intervertebral articular facets or in the tissues surrounding the nerve-roots cannot be doubted but it is felt that these are less frequent sites.

The question as to whether referred tenderness can occur in the body has been raised. Experience with the above-mentioned patients and other cases would appear to indicate that it occurs

quite commonly. In fact, in addition to referred pain, tenderness almost always co-exists in one or several areas. Tenderness of the testicle, the inguinal canal, the lower abdomen, the upper thigh, and the superior-lateral portion of the buttock usually can be elicited, sometimes largely confined to one area, sometimes to several, and sometimes over all these areas.

This association of severe pain with tenderness causes mistaken diagnoses of incarcerated hernia, appendicitis, renal colic, pelvic disease, etc. causing needless operations to be performed. Two of the above-mentioned patients had small hernias unknown to them since they were entirely symptomless and when such a person develops sudden pain and tenderness in the groin and a small hernia is found, unless a careful examination is made and a detailed history taken, the diagnosis of an acute hernia is frequently made. And, since the referred pain and the tenderness are often self-limited, gradually ameliorating, the mistaken diagnosis may never be rectified.

A diagnostic aid in this condition is the usual, though slight, disturbance of skin or deep sensibility. The sensibility to light touch may be diminished or increased over the lower abdomen or medial, upper thigh as compared with the opposite side. The patient may state that the area feels numb or "different." Pinching the subcutaneous tissues often gives rise to an altered sensation also. At other times only deep muscular tenderness occurs and must be elicited by firm pressure. Similarly, hypalgesia or hyperalgesia to pin-prick may be found. Indeed, these peculiar reflex disturbances have some of the qualities of both neuralgia and radiculitis, yet are not typical of either.

Another procedure which is of diagnostic aid as well as having therapeutic value, often causing immediate relief or diminution of pain, is the injection of a local anesthetic solution. If the tender area in the dorso-lumbar region happens to correspond to a "trigger" zone, the injection of a local anesthetic into that area, frequently causes a marked diminution of the pain and tenderness in the peripheral areas. It would appear that this proves that referred tenderness does occur, since the injection, in such instances, is not a nerve-block of the anterior divisions of the spinal nerves. The reflex arc is simply broken at its source.

Since tender areas over-lying muscular, fascial, and ligamentous structures do not always constitute trigger zones, injections into these areas may be ineffective. Here, para-vertebral injections of the 12th dorsal and 1st lumbar nerves should be effective if the condition is a referred pain along these nerves. From 5 to 10 c.c. of 2% procaine or, still better because of its longer action, 5 c.c. of iodized eucupin in oil are effective. In resistant, recurrent cases a 20% solution of alcohol in 2% procaine may be advisable. When the initial injection is helpful, the later recurrence of pain and tenderness is usually much less severe. A series of injections may be needed. It is not hard to understand the occasional failure of aid by injections since the exact site of pathology is often difficult or impossible to determine. When correctly placed, para-vertebral injections should largely eliminate pain and tenderness over the areas of distribution. Their frequent curative value is difficult to explain. Perhaps the irritating focus, by repeated stimulation, causes a lowered threshold for pain which is elevated toward the normal by the anesthetic solution. When the involved tissue can be reached by direct injection of anesthetic solutions the beneficial effect is often strikingly prolonged. Just why and how this occurs remains somewhat obscure. One factor is the freedom of motion rendered possible by the relief of pain, thus mobilizing stiffened areas. More important, no doubt, is the nullification of disordered nerve function with its associated abnormal tissue metabolism, anoxia, vascular spasm, and altered capillary permeability. When the local nerve elements recover from the effects of the injected solution they may have regained some of their normal functions, thus hastening local tissue repair.

Obviously, treatment must be directed toward the eradication of the cause of the trouble if it can be found. A great variety of therapeutic measures may be needed, including physiotherapy and orthopedic procedures.

To recapitulate, pathology in the dorso-lumbar region is a frequently overlooked cause for referred pain and tenderness in the lower abdomen, groin, upper thigh, buttocks, and low-back region. The distribution of the 12th dorsal and 1st lumbar nerve causes such dorso-lumbar pathology to be confused with intra-abdominal con-

ditions, hernia, testicular complaints, and various affections of the sacro-iliac, lumbo-sacral, and gluteal regions. It is one of the most frequent sites of involvement in the back. In addition to the usual physiotherapeutic and orthopedic measures, and the endeavor to correct the cause, the use of injections either directly into the involved area or by para-vertebral block, is of definite value in many instances.

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DISCUSSION

Dr. C. Paul White, Kewanee: I would like to ask Dr. Slobe a question. He speaks of this fibrositis. He did not definitely diagnose all these cases as fibrositis. We have been hearing a great deal about it.

I would like to ask him what his treatment of these fibrositis cases is and what his prognosis might be in the matter of convalescence.

Dr. D. E. Meier, Kewanee: I would like to ask Dr. Slobe if he can explain the reason for the pain radiating down to the left testicle. I have in mind a number of such cases and wish to corroborate his statements. In those instances that I have in mind I found that they all had hernias. What I would like to ask him is how he accounts for the pain radiating down to the left testicle and so rarely down the right one.

Dr. Frederick W. Slobe, Chicago (closing): Relative to the question as to the treatment of fibrositis, that is a very broad subject and is not within the scope of this paper. Obviously, attention should be directed toward removing the cause, if this can be ascertained. General measures include correction of anaemia, dietetic errors, and metabolic and endocrine disturbances. Physiotherapy and orthopedic treatment are essential.

The injections described, however, frequently have either diagnostic or therapeutic value, or both. If pain is relieved, active mobilization of infiltrated areas becomes possible. Whatever part disturbed nerve function has in these areas may be abolished. Referred pain may cease when the reflex arc is broken. Numbing the highly irritable nerves may enable them to regain a higher threshold for pain. Some patients fail to respond, some are moderately improved, and, in others, dramatic results are obtained.

The left side is affected most often, why I do not know, unless it is because most individuals are right-handed.

STUDIES OF FECES AND CLINICAL CONDITIONS FOLLOWING INGESTION OF GRAPE JUICE

SIDNEY A. PORTIS, M.D.

AND

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CHICAGO

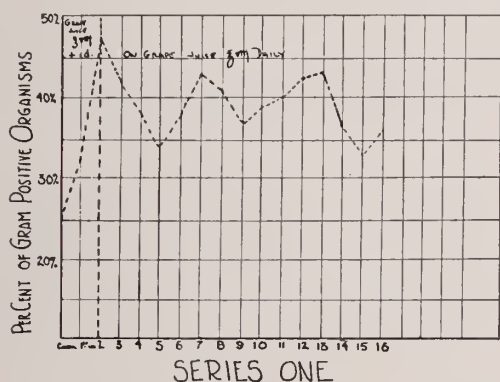
Because of the sugar and mineral content of grape juice, it was felt that this substance might have a marked effect on the intestinal flora. In order to determine this effect, a group of average individuals were selected for study. The bacteriology of their feces before and after taking the grape juice was determined.

It has been known for some time that gram positive organisms may be normal inhabitants of the intestines, and that diet is an important factor in their increase or decrease. The increase in gram positive flora is related to the aciduric content of the stool. Certain substances, such as lactose, as well as a high carbohydrate diet with limitation of protein intake, favor the development of an aciduric flora. If, after determining the average gram positive organism content of the stool it is found that an increase occurs after the administration of certain foods, it is justifiable to conclude that the increase resulted from these additional foods.

The patients studied were on a normal institutional diet which varied but little from day to day. It was found that after taking three glassfuls of grape juice for a period of 10 days, there was a definite increase in the gram positive organisms in the stool.

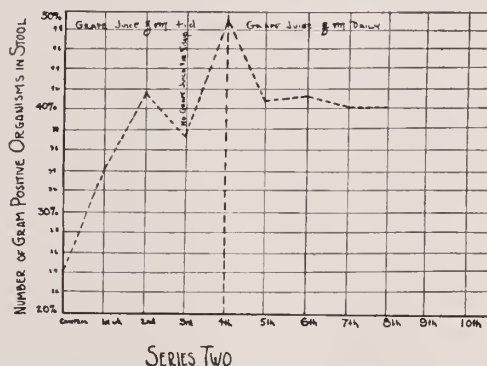
Method of Study. A group of 50 patients were selected who were free from disease and who were confined to an institution but were engaged in normal daily activities. Routine studies of the stools were made for a period of a week prior to administration of the grape juice. Standard emulsions of the stools were prepared in salt solution. Smears were taken from this emulsion and the number of gram positive organisms seen on the smear were tabulated. After this week of study to determine the average gram positive organism content of the stool, the individuals were given three glassfuls of grape juice daily for a period of 10 days. At the end of this time, the stools were again examined daily and the increase or decrease of the gram positive organisms noted. In addition, the physical characteris-

tics of the stools were also observed, particularly in regard to the consistency. Notes were made on the increase or decrease of the number of stools per day, and whether or not the patients who previously had resorted to laxatives could discontinue their use. Chart 1, series 1, shows that the average amount of gram positive flora in the feces was approximately 25 per cent. prior to the use of grape juice. At the end of two weeks with the grape juice it rose to 47 per cent.



elapsed at the end of three weeks during which no grape juice was given at all.

It is interesting to note in chart 2, series 2, that the average count before the administration of grape juice was approximately 24 per cent. At the end of the second week, it had risen to 42 per cent. During the period of five days when no grape juice was given, the flora remained at a relatively high level, although it did drop from 42 per cent, to 37 per cent. When grape juice



To determine whether or not these patients could maintain a gram positive flora on lesser amounts of the grape juice than three glassfuls a day, an eight-ounce glassful daily as a maintenance amount was administered. It was found that when drinking eight ounces of grape juice daily these patients had a slight drop in the aciduric flora, which gradually rose again to approximately 42 per cent. This average was maintained for several months with more or less daily variations. At the end of the period, of about 4 months after the administration of eight ounces of grape juice a day, the number of gram positive organisms remained between 33 and 36 per cent.

It is evident that the amount of gram positive organisms can very definitely be increased by the administration of three eight-ounce glassfuls of grape juice daily. This continued increase can be maintained by the continuance of eight ounces a day. The evaluation of the stools was as accurate as possible by this method. It is to be expected that slight errors within limits would occur in this type of experiment.

A second group of 23 patients were selected for study in which the initial period of administration of three glassfuls of grape juice daily covered four weeks. In this period, five days

was added again, a definite secondary rise occurred of the gram positive flora to 49 per cent. After attaining this height, it was decided to determine whether or not the gram positive flora could be maintained at this high level in a patient who had established a favorable environment for these organisms when lesser amounts of grape juice were given. When these individuals had eight ounces of grape juice daily, there was a gradual diminution in the number of gram positive organisms in the first week. Then, for the next three weeks it remained at a more or less constant level. In other words, there was a reduction from 49 to 41 per cent, in the first week when eight ounces were given daily but, after that time, for the next three weeks the amount remained at about 40 per cent.

It is evident from chart 2 that in individuals who originally began with a 24 per cent. gram positive flora, the count may be very definitely increased up to 50 per cent, with three glassfuls of grape juice, and a relatively high gram positive flora could be maintained after a suitable environment was established by giving the eight ounces of grape juice daily.

Discussion. From these experiments, it is seen that one can increase the gram positive flora in

stools of normal individuals by the addition of grape juice to the diet. This increase can be maintained and kept up after a suitable environment is formed for the existence of the gram positive organisms.

Few, if any, acidophilus bacilli were found in the stools of the patient before the administration of the grape juice, as determined by stool cultures. After the continued use of the grape juice, however, a very definite increase in the number of acidophilus bacilli was noted on subsequent cultures.

This group of individuals, confined in an institution as they were, under a more or less standard diet, all had a tendency to be somewhat constipated. The majority had to resort to drastic laxatives each night . . . yet not one of them, after the administration of grape juice, had a constipated stool, and none had to use laxatives during the time of this experiment.

Since we know that gram positive organisms are a factor in calcium metabolism, it is possible to postulate that an increase in calcium absorption might occur from the intestinal tract in an aciduric medium. Furthermore, if aciduric flora inhibits the growth of proteolytic organisms, there may be some relation in changing the flora to the prevention of the so-called intestinal toxemia. Whether or not intestinal toxemia is a factor in certain clinical symptoms patients manifest, may be open to debate. There is, however, no question but that persons who have a perfectly easy daily bowel movement have a feeling of well-being, are more free from headache, more energetic and less lethargic, have better appetites, are more alert, and stand physical exertion better than do persons who are habitually constipated and who are depressed because of the infrequency of their bowel movements.

From the observations made in these experiments, the following conclusions are warranted:

1. Individuals normally have a small amount of gram positive bacteria in their fecal content.
2. This gram positive flora can be definitely increased by the administration of eight ounces of grape juice three times a day for a period of two to four weeks.
3. This increase in gram positive flora can be maintained at a relatively high level after the grape juice is decreased to eight ounces a day.

4. Individuals who are habitually constipated are definitely relieved of the constipation after the addition of the grape juice, and find no further need for laxative or changes in the diet other than the use of grape juice daily.

(The grape juice for this experiment was furnished by the Welch Grape Juice Company, Westfield, New York.)

SULFATHIAZOLE IS BENEFICIAL FOR RECURRENT MOUTH DISEASE

It Relieves The Soreness And Promotes Prompt Healing Of The Lesions Involved In Aphthae, Physician Reports

"In 2 cases of recurrent, scarring aphthae [white spots in the mouth, sometimes called thrush, which develop into ulcers], sulfathiazole was beneficial in relieving soreness of the lesions and promoting prompt healing," Richard L. Sutton Jr., M.D., Kansas City, Mo., reports in *The Journal of the American Medical Association* for July 19.

"Sulfathiazole did not prevent recurrences, however," he continues, "but it gave comparable relief a second time. A large dose works better than a small one. I know no other treatment as effectual."

Cases of aphthae, the author says, are not common and are recognized under many names, but all are alike and their cause is unknown.

"Commencing as a small nodule within and beneath the mucous membrane of the lip, cheek or tongue," he explains, "a lesion increases in size, sloughs and causes severe pain, becomes a crateriform ulcer with inflamed, firm borders, runs a course uninfluenced by local treatment and eventually heals, leaving a soft, pliable, depressed, whitish scar. Several lesions may be present simultaneously. The patient, suffering over a period sometimes of many years, can scarcely swallow during exacerbations [increases in severity]. He seeks relief, generally without any success whatever despite the ingenuity of numerous consultants, and shows a mouth with many scars to the sympathetic practitioner, who knows the better the wider his experience is that he can indeed do little to give relief."

One of the author's 2 patients had had the recurrent ulcers for eighteen and the other 1 for one and a half years. After two months of treat-

ment the first patient said that her mouth healed completely for the first time in four or five years and stayed healed for two months. Then the disease recurred. Further treatment with sulfathiazole caused the lesions to decrease in size, but new lesions continued to appear. The response of the other patient's ulcer to the drug was prompt and gratifying, the ulcer showing good clinical improvement five days after starting the treatment. This patient reported relief from pain within forty-eight hours after starting the drug. The lesion healed satisfactorily but a year later a new sore commenced. Sulfathiazole again produced the same effect of aborting the lesion and giving relief from pain.

TOLD ARMY WILL NOT UNDERTAKE REHABILITATION OF SELECTEES

Commission Advises Government Organize Voluntary
Program To Correct Remediable Physical
Defects Of Nation's Manpower

The Commission on Physical Rehabilitation, recently appointed by the Health and Medical Committee of the Federal Security Agency, reports in the Medical Preparedness Section of *The Journal of the American Medical Association* for July 19 that it "is authoritatively informed that the Army will maintain its present high physical standards of eligibility for military service and will not undertake the rehabilitation after induction of men classified by Selective Service and Army induction boards as having remediable physical handicaps. In making the following recommendations, the commission has therefore been restricted to a program of voluntary physical rehabilitation.

"In order to provide information concerning the frequency and the nature of remediable defects among men examined for Selective Service it will be necessary to require physicians of Selective Service and Army induction boards to state in every instance whether the physical handicap responsible for classification I B or IV F is remediable in their opinions. Such registrants should be grouped in a special classification and designated as I B-R and IV F-R. Without this information it will be impossible for states and local communities to prepare plans and to estimate the cost of a rehabilitation program.

"The diagnoses recorded on the records of registrants classified in groups I B and IV F by physicians of the Selective Service and Army induction boards give little indication of the possibilities for complete or partial correction. There is a mistaken impression that all defects of registrants in class IV F are not correctable. Actually, registrants in I B have handicaps which restrict their availability to limited forms of military duty, yet the physical disability in some

is permanent and non-remediable. Registrants in IV F are suffering from major disabilities which render them incapable of performing any military duties, but some of the men in this category could be restored to group I B or even I A by the correction of their physical handicaps.

"The special classification as I B-R and IV F-R will act as an incentive to voluntary correction of remediable physical handicaps. A comprehensive program for physical rehabilitation of the young men of the nation is important in order to maintain effective man power for industry as well as for military service. It will also have an influence in retarding the development of disabilities of middle age which are responsible for an unemployable group in every community.

"Experiments in voluntary rehabilitation have been proposed for a few local areas by the American Red Cross and several other agencies. A small experiment in a few selected urban and rural communities will not provide a satisfactory yardstick to estimate the cost for the entire country nor can it provide a reliable answer to the problem. The Commission is of the opinion that we must immediately lay the groundwork of comprehensive future plans for physical rehabilitation of our man power by accumulating accurate information in every part of the United States concerning the frequency and the nature of remediable physical disabilities and it therefore submits the following recommendation:

"1. Form 200, 'report of physical examinations,' under the Selective Service and form 221, WD-AGO, 'report of induction of Selective Service man,' should be amended to contain (a) a place for the examining physician to state whether or not, in his opinion, the physical defect causing rejection is remediable or correctable; (b) the creation of subclassification of I B and IV F (I B-R and IV F-R) to indicate whether or not the registrant is classified as suffering from a remediable or correctable physical defect; (c) statements to be signed by the registrant in these subclassifications relative to (1) his willingness to undergo corrective and remedial procedures, (2) permission for release of information pertinent thereto and (3) whether or not he will provide for appropriate treatment out of his own financial resources.

"2. (a) Subparagraph c of paragraph 165 of the Selective Service regulations should be amended to permit the examination at any time of confidential records pertaining to the physical condition of a registrant by the governor of the state or his designated official representative; (b) Subdivision b of paragraph 338 of the Selective Service regulations should be amended to provide appropriate parts of the report of physical examination, form 200, in duplicate, and arrangements be made whereby one form may be retained temporarily for rehabilitation purposes by state Selective Service headquarters and state rehabilitation boards.

"3. The following instructions should be issued by the National Director of Selective Service to all local boards: When a local board has finally placed a regis-

trant in class I B-R or IV F-R, the chairman shall write to the registrant advising him of his classification and of the underlying condition that caused such classification, and shall inform him that the condition is considered remediable by the examining physician. He shall also advise the registrant to have the remediable defect corrected by his own physician or dentist or, if the registrant is unable to bear the necessary costs involved, he may have the work performed by applying to the appropriate agency or hospital in his area. For this purpose the state director of Selective Service shall supply all chairmen of local boards with a list of agencies, hospitals or other institutions located in the neighborhood which are prepared to engage in this rehabilitation work during the period of the national emergency. The chairman of the local board shall further advise the registrant of the time that the board has allowed for the correction of his defect, at the expiration of which time the registrant must present himself to the board for reexamination and reclassification.

"4. In all states and local areas rehabilitation committees should be created jointly by the Federal Security Agency and the Selective Service System to collaborate with professional groups and with local governmental and voluntary agencies in the development of local rehabilitation facilities.

"5. Only a small proportion of the population can afford to pay or will be willing to pay for corrective measures which may make them available for military or industrial service but which do not as yet interfere with their present civilian occupations. Communities differ greatly in the availability of medical facilities, and some states and many local communities will be unable to provide the remedial measures which may be necessary to correct physical handicaps. Because of national emergency, the responsibility is national as well as local. In order to meet the situation realistically it is recommended that Congress enact legislation to defray the cost. As this is primarily a matter of vital necessity for national defense, the cost should be met directly by federal defense appropriations to the Federal Security Agency, when needed, utilizing fully its available local medical, dental and hospital facilities. Without federal legislation of this nature, it can be predicted that little progress in voluntary physical rehabilitation is to be expected.

"In the opinion of the Commission the alternative to such a voluntary program is lower physical standards of eligibility for Selective Service and compulsory physical rehabilitation after induction into the Army. Action is required along the lines of one or other of these alternatives, for the present standards of physical eligibility have reduced the nation's reservoir of eligible registrants to a number far lower than had been anticipated."

NO RETREAT FOR MEDICINE

The flame-lit skies of bombed British towns can sometimes be seen at night from countries across the

Channel. America, too, hears the rumble of the War God's chariot and his hot breath is felt by each of us. This is not strange when every paper in the land carries banner headlines on war and on our defense measures.

Reports are conflicting. The losses of the combatants fluctuate like the stock market and figures are high or low, depending on which side is telling the story. Our thoughts are pulled this way and that by propaganda. It is true that our sympathies lie with the democratic nations, but do not make the mistake of believing that therefore the dictator powers can have no influence over our destiny. Propaganda, we are told, is the most powerful weapon that can be wielded. It sneaks and crawls into the very mind of man or marches in to the tune of martial music. The democratic nations reach us by arousing sympathy; Hitler and his unholy brethren inspire us with terror and try to create the impression that they are invincible. Many are prone to fall under the hypnotic sway of such suggestions and might then assume that a struggle is not even worth while.

Countless old legends are woven around a theme similar to the story of Achilles' heel. It is comforting to remember that there is always a weak point that can be reached, and when poise is substituted for hysteria we know that liberty must eventually conquer.

In a life-and-death struggle such as that now being waged by England, activities must be restricted to the bare necessities. Research goes on feverishly but in the destructive field of war machinery. Medicine goes on too, and we are even told of great discoveries in plastic surgery, wound therapy, and so forth, which evolved during or as a direct result of the last World War.

These too, however, must be considered as children of necessity. The greatest part of medicine has to be laid aside to be dusted off only after the peace treaty has been signed.

In the meantime our American physicians must carry a burden of responsibility not only for themselves but for those of their profession who are homeless and persecuted, for the harassed and overworked in the war zone, for the dead, and for that vast uncounted army of young men who would have become healers if fate had not called upon them to become killers.

We must not permit the fire glow from England to cause panic which will rout the ranks of medicine. We must continue to perform our everyday tasks with as much serenity as possible. We must not discard research as useless in a mad world, for the day will come to aid those who are torn and bleeding so that when the first of destruction dies away, they may lift high the bright flame of liberty that burns undying in their hearts.—*Pennsylvania Medical Journal*, Feb., 1941.

Clinical-Pathological Conferences

J. J. Moore, M.D., Department Editor.

PRESENTATION OF CASES BY
WALTER SCHILLER, M.D., PATHOLOGIST
Cook County Hospital
CHICAGO

NECROTIZING FATTY CIRRHOSIS OF THE LIVER

DR. J. D. KIRSHBAUM.

A. K. a white male aged 65, was admitted to a medical ward October 2, 1940. The examining room diagnosis was cirrhosis with ascites. The patient had noticed a swelling of his abdomen for 2½ weeks. This was associated with jaundice and swollen feet; he admitted drinking three ounces of whiskey daily for the past three years. The rest of his history was irrelevant.

Physical examination: The skin and sclera were icteric. T. 98.2; pulse 100; R. 24; B.P. 128/68. Pupils were equal and reacted to light and accommodation. Heart and lungs showed no unusual findings except for some rales in both lung bases. The abdomen was rounded and distended. A fluid wave could be felt. The superficial veins were dilated. The lower extremities were edematous. The clinical impression was cirrhosis of the liver.

Laboratory: The urine was negative for albumin and sugar and contained much bile. There were a few white blood cells. The urobilinogen was strongly positive. The feces showed chemical blood, and was yellow in color. Blood examination showed Hb: — 54%; RBC: — 2,850,000; WBC: — 5,650. Differential count: — Polys. — 87%; Lymph: — 10%; Mono: — 3%. Kahn test was negative. Culture of the paracentesis fluid was negative.

Blood Chemistry: 10-3-40 — Blood cholesterol, — total 192; icterus index — varied between 50 to 75. Uric acid: — 3.2; the post-mortem blood chemistry was as follows: N.P.N.

— 140 mg.; Creatinine. — 2.6; Chlorides — 550; sugar 125.

Course: A paracentesis yielded 500 cc., of a greenish fluid and this permitted the liver to be felt four fingers below the right costal margin. He was given supportive treatment. He remained afebrile, lapsed into a coma and expired two weeks after admission about 5 weeks after the onset of his illness.

DR. AARON ARKIN

This patient gave a history of chronic alcoholism, and complained of swelling of the abdomen and jaundice for about three weeks. A diagnosis of cirrhosis was made. In such a case the inspection of the patient is often suggestive of so-called alcoholic cirrhosis. First, about eighty percent have a pectoral alopecia. Second, we often see small spider telangiectases on the face, neck, shoulders, or chest wall. The veins of the abdominal wall are often dilated and the blood flow is from below upward. Very often we find hemorrhoids. Palpation reveals an enlarged liver in about three fourths of the cases. The enlargement is often due to marked fatty infiltration as well as liver cell regeneration and scar tissue formation. Especially important in differential diagnosis is the presence of a palpable spleen. Such a finding in a case with jaundice speaks for cirrhosis and against an obstructive jaundice. A very frequent symptom of cirrhosis is hematemesis or melena from bleeding varices of the esophagus or stomach. This may be the first symptom of cirrhosis. It occurs in about twenty percent of cases. I have often visualized the varices in the esophagus with barium. I have also noted the presence of edema of the feet in early cases, easily mistaken for a beginning cardiac decompensation. I believe this to be due to some pressure on the iliac veins

from fluid already present in the pelvis. Another significant finding in cirrhosis is the macrocytic anemia, probably related to the chronic gastritis and liver changes with disturbance in the formation and storage of the anti-anemic factor. The urine usually reveals an increase in urobilinogen. There is often a reduction of the serum albumen-globulin ratio. In closing I wish to emphasize the importance of an early diagnosis of cirrhosis in the pre-ascitic stage, in the hope of preventing the fatal ascitic stage. Any patient with a history of chronic alcoholism and a palpably enlarged liver, especially when there is a pectoral alopecia, should be diagnosed as an early cirrhosis. A positive bromsulphalein test will confirm the diagnosis. Alcohol and spices should be prohibited. Jaundice occurs in about forty percent of cases of cirrhosis. It may be mild or severe. When marked it indicates severe liver cell necrosis, which may lead to a fatal hepatic coma with icteric nephrosis and azotemia.

DR. WALTER SCHILLER.

The body is that of a well developed, well nourished, slightly obese, white male with marked yellow discoloration of the skin and conjunctiva. There is no pitting edema. The abdomen is markedly distended and fluctuant. The thorax is barrel-shaped. The midline fat measures up to 18 mm., in thickness and the abdominal cavity contains more than one (1) liter of a pale yellow slightly turbid fluid. The heart reveals nothing of pathological importance and the aorta, except for a moderate amount of fatty degeneration of its intima, is essentially unchanged. The lungs reveal evidence of a chronic emphysema; they have a feathery consistency and their pleural surface is uneven due to numerous bullous projections. On transverse section the lungs are dark-purple red, almost black, in color and on pressure large quantities of a slightly hemorrhagic, yellowish serous fluid escape. The esophagus presents focal thickening and focal desquamation of the epithelium. Distended veins can be seen in the lower one-third of the esophagus. The mucous membrane of the stomach is pale gray in color and is so thin as to be transparent and reveals the distended vessels of the underlying submucosa (atrophic chronic gastritis). The spleen weighs 410 gms., and is extremely soft. The thin gray capsule

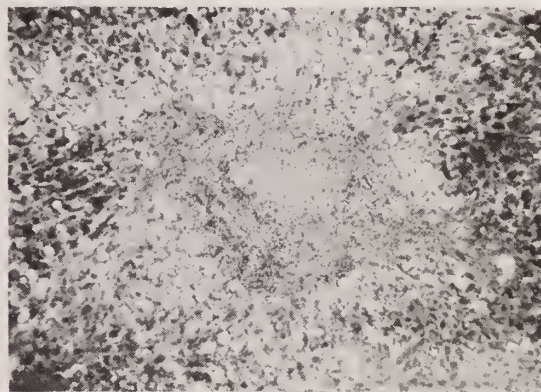
shows only indistinct markings. On transverse cut the half-fluid splenic parenchyma projects over the surface. The liver weighs 2335 grams and has only a moderately firm consistency. The thin, perfectly smooth capsule is adherent to the inferior aspect of the diaphragm on the right side. On section the liver tissue is greenish-gray in color with small red dendritic markings. The gall bladder contains 30 cc., of a thin greenish bile. All of the large bile ducts are patent. The pancreas weighs 250 grams and on section presents a few dull grayish yellow acini of glandular tissue which are imbedded in pale gray fat tissue. A few bright sulphur-colored spots of fat necrosis are scattered over this fat tissue. The kidneys are moderately firm. The capsule strips with ease from the smooth pale purple surface. On transverse cut a yellow discoloration of the parenchyma becomes evident with its distinct markings. The contents of the intestines reveal the presence of bile pigments; those in the small intestines being green in color and those in the large intestines being brown in color. Microscopically the liver is composed of small and large pseudo-acini which do not have the radial structure of normal acini. They are separated by small, slightly increased periportal fields. The intra-acinar connective tissue which connects the peri-portal triads similarly presents only a minimum increase. There are dense lymphocytic infiltrations in the triads and a few regenerating and proliferating bile ducts. The liver cells present a high degree of fatty degeneration and in some areas, intra-and inter-cellular bile casts. There are numerous small foci of liver cell necrosis.

DISCUSSION

It may seem questionable whether we are correct in classifying a case like this as one of cirrhosis. This name was coined by the first investigators for an induration and fibrosis of the liver. The Greek word from which this name (cirrhosis) is derived is the same as that from which scirrhus carcinoma is derived and the latter means a carcinoma of high resistance due to the increased amount of connective tissue. Now-a-days we know that in the degenerative processes which involve the liver in some cases of chronic alcoholism and more acutely in cases of intoxication by spices and similar irritating substances, the fibrotic induration is only one component of the pathological changes which occur. Degeneration, (usually of the fatty type, but occasionally of the necrotic type), of the liver cells is the second and even more important component of the changes which

occur. For the latter there is a compensatory regenerative bile duct proliferation. In the classical Laennec Hypertrophic Periportal Cirrhosis the fibroplastic component is in the foreground but in many cases we see the degenerative and the necrobiotic components play the cardinal role. Apparently not only the type of toxic substance but also the constitution of the patient is of importance as to which component will play the major role. Certain individuals have a general constitutional tendency for a strong connective tissue proliferation response. Such individuals develop keloids after injuries which result in only thin linear scars in the normal individual. A similar constitutional fibroplastic response may be responsible for the development of a hypertrophic granular cirrhosis, whereas in individuals without such a tendency the degenerative component is the predominating one. However, it seems justifiable to use the name cirrhosis for the combination of degeneration, fibrosis, and regeneration of the liver, provided we characterize the individual cases by adding the proper adjectives to describe the predominating findings. Thus our case is one of necrotizing, fatty cirrhosis. The rather frequent combination of chronic bronchitis with liver cirrhosis deserves some explanation. The veins of the bronchial mucosa discharge their blood anteriorly into the Vv. anonym., the V. cava superior and in the Vv. pulmonales, and posteriorly (this seems to be of greater importance) into the V. azygos. This vein communicates with the V. lumbalis ascendens, and the ascendens with the V. iliolumbalis. The V. iliolumbalis anastomoses with the Plexus Sacralis, at the anterior aspect of the sacrum, and this plexus with the Plexus Hemorrhoidalis, behind the rectum. The Plex. Hemorrh. gets blood from the middle V. hemorrhoidalis and this vein anastomoses with the inferior V. mesenterica, a tributary of the Portal Vein. By this way a collateral circulation is established: v. mesent. inf.- v. hemorrh. media- plex. hemorrh.- plex. sacr.- v. iliolumb.- v. lumb. ascend.- v. azygos- c. cava sup.- by this collateral way venous blood from the intestines can reach the V. cava sup. without passing the liver through the portal vein if the passage is impaired by cirrhosis. On the other hand the V. coronaria ventriculi. of the stomach, a tributary of the portal vein, anastomoses along the cardia with the esophageal veins, which empty in the v. hemiazygos, which opens into the V. azygos- a second collateral from the portal to the cava superior which contributes to the engorgement of the V. azygos. In our case, at autopsy, the V. azygos was found to be markedly congested and was thicker than the little finger. This congestion extended back to the posterior bronchial veins and provoked a passive congestion and a chronic edema of the bronchial mucosa and hypersecretion of the glands thus causing a chronic catarrhal bronchitis. The etiological mechanism of this duplicates that of the stasis catarrh of the stomach in heart failure. The lipomatosis or steatosis

of the pancreas as seen in this case and the causative factors thereof have been investigated. In some cases it appears to be a chronic degenerative process caused by chronic inflammation. The slides of our case present a moderate lymphatic infiltration of the septa. The increase of the fat tissue may be a simple ex-vacuo proliferation as is generally carried out by the interstitial fibrous tissue. Concerning the laboratory findings, the highly positive urobilinogen may be explained by the degeneration of the liver. The liver parenchyma under normal conditions transforms the urobilinogen, which is formed in the intestines as a result of the reduction of bilirubin by the colon bacillus (*B. coli*), back into bilirubin and excretes it with the bile. The degenerated liver cells are not capable of carrying out this transformation and the urobilinogen escapes into the blood stream. The high N.P.N. is to be traced back on the one hand to the destruction of protein in the liver necrosis and on the other hand, to the degenerative changes of the renal tubules caused by the jaundice. The damaged epithelial cells, instead of shifting only the water out of the glomerular secretion toward the interstitial capillaries and thus concentrating the urine, allow the N.P.N. which has already been excreted by the glomeruli escape with the water back into the blood stream.



Liver:

In the center a focus of complete necrosis with lymphocytic infiltration surrounded by a zone of fatty degeneration. In the periphery only to the right and to the left strands of normal liver cells can be seen.

Anatomical Diagnosis:

- Necrotizing fatty cirrhosis of the liver with non-obstructive jaundice,
- Progressive steatosis of the pancreas and foci of fat necrosis,
- Chronic catarrhal bronchitis and edema of the lungs,
- Varicose esophageal veins,
- Infectious hyperplasia of a cirrhotically enlarged spleen,
- Chronic atrophic gastritis,

Moderate dilatation and severe myo-degeneration of the heart,
Moderate coronary sclerosis,
Icteric nephrosis of the kidney,
Hemorrhagic trigonitis of the urinary bladder,
Small polyp of the rectum,
General adiposity.

ACUTE AND CHRONIC GLOMERULONEPHRITIS

DR. J. D. KIRSHBAUM.

Patient was a 17 year old, white boy, who was admitted to the Cook County Hospital on the 27th of October 1940, with an examining room diagnosis of Pulmonary Pathology. He was well until two weeks prior to admission when he started having vomiting spells which was followed by pain in the right upper abdomen. This was followed by a sore throat, pain in the left chest and precardial region. For three days he noticed shortness of breath. On admission physical examination disclosed a pale looking boy. The throat was injected. Temperature was 100.4; the pulse rate 96; and respirations 26. The blood pressure was 190/129. There was dullness with increased tactile and vocal fremitus, and rales in the left lower lung field. The clinical impression was chronic glomerulonephritis.

Laboratory: Blood: Hb: — 36% R.B.C.: — 2,190,000; W.B.C.: — 9,950; differential smear showed 87% polymorphonuclear leucocytes; 11% lymphocytes; and 2% basophiles. Non-protein-nitrogen was 280 mg., creatinine 20.0 mg. Blood chlorides 440 mg. CO₂ combining power 28 vol. percent. Serology was negative. The urine showed 4 plus albumin; sp. gr. 1.010; and red blood cells microscopically. X-ray examination of the chest was negative. In the ward the patient had difficulty in urinating. In spite of parenteral fluids the urinary output was scanty. He became markedly dyspneic, semistuporous and expired 11-3-40, on the 7th hospital day or 3 weeks after the onset of his illness.

DR. WALTER SCHILLER.

On autopsy, we found a well-developed, well-nourished, white male. The skin is white and markedly pale. No edema can be found. Examination of the external genitalia reveal a slight infantile hypoplasia especially of the testi-

cles. Over the skin of the chest tiny white crystals can be seen. On opening the peritoneal cavity, the intestinal loops are slightly distended by gas.

The peritoneal serosa is smooth, and shiny, and the peritoneal cavity free. The pericardial sac contains 20 cc., of a turbid hemorrhagic fluid from which red blood cells have sedimented. The epicardium is soft, and appears to be slightly thickened. The heart, 320 gms., is moderately contracted and shows a fibrous epicardial plaque, on the anterior aspect of the right ventricle close to the apex. The myocardium is pale, pink-brown, and firm. The valves are all normal. The coronaries present moderate fatty degeneration of the intima. The wall of the right ventricle is slightly thickened, and the trabeculae carneae are plump. The pleuras are free. The lungs, particularly the lower lobes, show on transverse cut a few dark consolidated areas of bronchio-pneumonia. The mucous membrane of the bronchi is pinkish-brown, and the lumen contains frothy mucinous fluid. Hilar and tracheal lymph nodes are markedly enlarged, soft, grey and edematous. The liver, 1500 gms., is moderately firm. The spleen, 145 gms., is rather soft and on section the dry surface reveals large and very distinct lymph follicles. The kidneys, 150 gms., are small and moderately firm. The capsule strips with moderate ease, leaving a slightly granulated light yellow, white surface, with numerous pin point size dark purple red spots. On section the cortex is markedly reduced in size to 3 to 4 mm., the markings and the demarcation between the cortex and the pyramids are indistinct. The mucous membrane of the renal pelvis is normal. The urinary bladder contains about 100 cc., of a pale, yellow, thick turbid, almost mucinous urine. The wall is markedly thickened by edema. The mucous membrane is light grey with congested vessels and small petechiae in the region of the trigonum.

Microscopical examination: The kidneys present different types of changes in the glomeruli. The vast majority show marked proliferation of the epithelial and endothelial nuclei of the tufts, which contain numerous leucocytes in the lumen. The endothelium of the parietal layer of Bowman's capsule, showed a marked proliferation by which it fills Bowman's space almost completely. The connective tissue of the capsule

presented a moderate thickening only. There is another smaller group of glomeruli with slight proliferation of the tufts which are rounded up and present no indentation of the peripheral contour. Here Bowman's space is free, the endothelium is normal but the fibrous part of the capsule is markedly thickened. A third group of glomeruli shows more or less complete hyalinization. The first group represents acute and subacute changes, the second and the third chronic changes. The tubuli of the chronic group are involuted. The tubuli of the acute group are dilated and filled with proteinic debris. Some of them present a marked dilatation and are filled particularly in the subcapsular region, with red blood corpuscles. These distended tubuli which are stuffed with red blood cells, correspond to the red spots seen on the surface on gross examination. In the lower part of the cortex and in the pyramids there are numerous radial areas of dense leucocytic infiltration, ascending along the canaliculi from the pyramids to the cortex, giving evidence of an old pyelonephritis. The vessels are almost unchanged. The fat stain shows fatty degeneration of the tubular epithelium in the inflammatory areas. The lungs present numerous areas of alveoli stuffed with leucocytes. The smaller bronchi and bronchioli are filled with pus cells and the mucosa shows inflammatory infiltration. In many areas alveoli are fused together by emphysematous deficiency of separating walls.

DISCUSSION

The history of this case gives evidence of an old chronic process on which an acute one was superimposed. The old represents a chronic nephritis, which has caused the hypertrophy of the left ventricle by increased blood pressure and the granulation and shrinkage of the kidneys. The cause and onset probably was some infection in early childhood. The history gives no information. This happens frequently since the first phases of many cases of nephritis are so insidious and inconspicuous on clinical observation. A few weeks ago the patient developed an acute sore throat of a septic type. This provoked an acute reaction of the kidneys which already were sensitized by the chronic process. These two strata are manifested in the kidney by the two types of changes in the glomeruli. The fibrosis, and hyalinization, representing the chronic, and the endothelial proliferation representing the acute and subacute renal reaction. The latter evidently started a few weeks before death beginning with a hemorrhagic glomerulitis. At death there were no longer any red blood cells in the glomerular space. They had already been passed

into the dilated tubuli where they produced the flea bite like red spots as gross inspection. A third pathological change is due to the ascending pyelonephritis which may have contributed to the sensitization and undoubtedly has contributed to the final renal insufficiency and uremia. Cases like these have to be classified as glomerular diseases in the classification of renal affections of Bell, who distinguishes glomerular, vascular, tubular, and interstitial changes. Whereas in former times and particularly at the time when Volhard and Fahr laid in the foundation of kidney pathology, glomerular affections where in the foreground and the vascular sclerosis was only a small annex of kidney pathology, now a days and with us the true glomerulonephritis has become rare compared with the ever-increasing incidence of vascular nephrosclerosis. We see in our material at the morgue about ten times as many cases of nephrosclerosis as we do of true glomerulonephritis. The hypertrophy of the left ventricle goes with chronic nephritis which cannot explain the hypertrophy of the right ventricle. This has to be traced back to the emphysema which evokes a stronger reaction in the right heart of a child than in that of an adult.

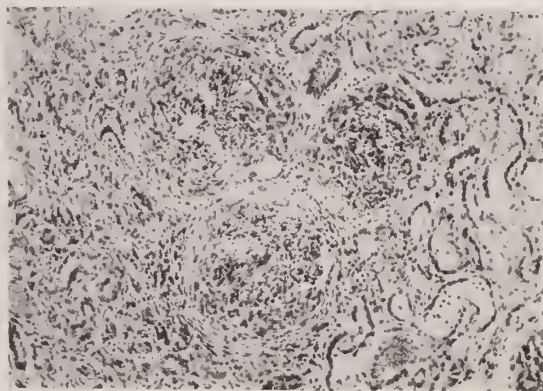


Fig. 1. Three glomeruli with "crescents" (acute proliferation of Bowman's capsule endothelium).

Anatomical diagnosis:

Subacute hemorrhagic nephritis superimposed on chronic glomerulonephritis, chronic cystitis with edema of the bladder, bronchopneumonia of both lower lobes, slight hypertrophy of the left and marked hypertrophy of the right ventricle, acute hemorrhagic pericarditis, infectious hyperplasia of the spleen.

CARCINOMA OF THE CECUM, and CARCINOMA OF THE RECTUM

DR. J. D. KIRSHBAUM.

Patient was a white male aged 54, who was admitted to the hospital September 21, 1940. He stated that during the past year he had lost twenty pounds in weight, had abdominal pains,

distension and a progressive weakness. His appetite was good, but did not eat because of abdominal discomfort and vomiting which resulted. An appendectomy was performed in December 1939, at which time a tumor was found. Two months later he was admitted to the Billings' Hospital complaining of colicky pain in the lower quadrant, and vomiting. Examination disclosed a tumor mass in the region of the cecum, about the size of a fist. On February 21, 1940, he had a resection of the cecum, adjacent lymph nodes, and three and one-half feet of ileum. An ileocolostomy was performed. X-Ray examination of the intestinal tract revealed an annular carcinoma of the cecum. He made an uneventful recovery, and was given nineteen x-ray treatments during the next nine months.

Physical examination: Disclosed a marked distention of the abdomen. It was tympanitic. A huge, firm, irregular mass in the liver area was felt. A right rectus surgical scar was present. Temperature 98.6; pulse 100; respiration 28. The prostate was small. A firm mass was felt in the anterior wall of the rectum, 10 cm. from the anus which was considered to be extrinsic.

Laboratory: Urine- albumin-trace; bile +++; occasional white blood cells. Urobilin +.

Blood — 9-23-40: — Hb 60%; RBC 3,300,000; WBC 7,850; Polys 91%; Mono 7%; Lymph 2%

9-23-40: — NPN 50; Uric acid 5; icteric index 15; Blood Kahn-negative.

Course: The abdomen remained distended, he was given fluids and blood transfusions, but gradually went downhill and expired one week after admission.

Impression: Metastases to the abdomen from a carcinoma of the cecum (previously removed).
DR. L. SLOAN.

This case presents several interesting features. We are told that previous to the original operation this patient had abdominal pain, distention, marked anemia and alteration in bowel habit. The history given by the patient on his recent admission to the Cook County Hospital might well have been the history given originally. You will note the chief complaint is distention and distress produced by eating. The patient's actual appetite remained very good but he did not eat because immediately after there

was produced in the lower abdomen a distress which was sufficiently severe to prevent enjoyment of his food. This is very suggestive of colon pathology. You will recall that with acute colitis the common complaint is abdominal distress initiated by or shortly after the ingestion of food. The patient's appetite remaining so good we are clinically prompted to believe that there is no pathology in the stomach proper. The original marked anemia again suggests a papillary or fungating lesion of the colon which by chronic bleeding produces anemia. On examination of the patient previous to entrance into this hospital a mass was found in the pelvis which was regarded as extrinsic. Examination by a resident here disclosed a mass which could be felt on rectal examination but which was regarded as again extrinsic. In other words this mass was regarded as a drop metastasis in the pelvis from a previous upper abdominal malignant lesion. The history and physical findings warrant us in a clinical diagnosis of fungating adenocarcinoma of the cecum which was resected and from which the patient made a very excellent mechanical recovery. We must add thereto the diagnosis of metastatic carcinoma involving the liver and undoubtedly most of the structures in the abdominal cavity. Of particular interest is this mass in the pelvis. Is this a primary carcinoma of the rectum from which metastases have spread to the liver and other organs of the abdominal cavity or are the metastases the result of a primary fungating carcinoma of the right colon? The absence of metastases in the liver and other structures at the time of operation would suggest to us that we have been dealing with two independent carcinomas, one in the right colon and now a second one primarily in the rectum. The clinical interest rests in the history of a good appetite, failure to eat because of distress in the lower abdomen, marked anemia preceding the original operation, recovery from operation, the rapid development of extensive metastatic growths throughout the abdomen, and a mass which was palpable by rectum. Is this a drop metastasis or a new growth? One would incline to the diagnosis of two separate malignant growths.

DR. W. SCHILLER.

The body is that of a poorly nourished white, emaciated male. The skin shows a pale yellow,

waxy discoloration. There is a tattoo mark on the right and one on the left forearm. The abdominal cavity contains about 2500 cc. of a turbid reddish brown fluid. The omentum is rolled up and indurated, and adherent to the anterior abdominal wall, at the site of an ancient 5 cm. right rectus surgical scar. The parietal serosa of the intestines all over is covered with numerous, firm, grey pin head size nodules. The pleura presents a few fibrous adhesions particularly over the right upper lobe. The lungs are crepitant and on transverse cut are very moist. The heart weighing 290 gms., has a firm, purple brown myocardium. The valves are all normal. The stomach is distended and contains hemorrhagic mucoid fluid. The mucosa is dirty reddish brown, smooth and in the prepyloric region is studded with small purple red spots. The spleen weighing 250 gms., is soft, dark purple pink, with indistinct markings on transverse cut. The liver weighing 3265 gms., is very firm, and the surface is studded with pin head to 15 mm., flat, greyish white nodes, some, particularly the larger ones, are slightly umbilicated. On section the surface is bright yellow green, mottled with large greyish white, sharply demarcated nodes. Some of branches of the portal vein are occluded by firmly adherent, soft, gray tumor tissue. Corresponding to the area supplied by one large obstructed vein there is a triangular light purple red, sharply demarcated infarcted area 8 cm. long which can be seen in the subcapsular region of the right lobe. The gall-bladder and pancreas present no pathology. The terminal ileum and cecum are missing, and there is a side-to-side anastomosis, in which region the bowel is kinked and firmly adherent to a mass in the mesentery measuring 3 cm. in diameter. The small intestine contains thick reddish-brown fluid, and the colon contains soft, black fecal masses. The cortex of the left adrenal is partially replaced by grayish-white tumor tissue. The kidneys weighing 370 gms., have a finely granular pale purple brown surface. Bladder and prostate are normal. The prostatic veins contain numerous phleboliths. In the rectum, 9 cm., from the anus there is a circular slightly elevated flat tumor plaque, measuring 45 x 26 x 7 mm.

Microscopic: The node in the rectum presents carcinomatous transformation of a group of glands in their normal localization. These

glands meet with the normal glands in a sharply demarcated cleavage line without intermedial transition. From these carcinomatous glands small clusters and single cells in great numbers invade the submucous tissue. Whereas the superficial glandular carcinoma presents a high maturity, the invading part is completely dedifferentiated and characterized by many atypical bizarrely shaped cells. In the omentum, the adrenal, and the liver as well as in the perirectal tissue the carcinoma, partially duplicates the dedifferentiated single cell type of carcinoma, forming alveolar structures lined by low columnar epithelium, and filled with a mucin secretion in which desquamated swollen and necrobiotic carcinoma cells can be seen floating. The superficial development and the characteristic high maturity proves the rectal node as a primary. The case consequently, must be classified as a double carcinoma, first of the cecum, then of the rectum. Whether the two carcinomas existed together and simultaneously or whether the rectal carcinoma developed only after the removal of the cecal carcinoma is difficult to decide. The small size of the rectal carcinoma makes it likely that it developed recently i.e. after the removal of the cecal carcinoma. It is a traditional experience that a rectal carcinoma takes a half year to become semi-circular and one year to become circular. Following this experience we would date the origin of the rectal carcinoma 4-5 months back. This suggestion is supported by the negative findings on clinical, rectal, and proctological examination. It is possible that the carcinoma was preceded by a polyp which later became malignant, but there was no way to prove this at the autopsy.

In double carcinomas we distinguish two groups: that group in which both carcinomas develop in the same organ, and the other group in which the carcinomas develop in two different organs. These groups are then subdivided as to the time of their development, i. e. whether the two carcinomas developed simultaneously or after each other successively. The double carcinoma deserves a special interest since it throws light to the etiology of carcinomas in general.

In case that carcinomas develop on a generalized constitutional tendency, double or multiple carcinomas should be found frequently, provided that the constitutional tendency can not be changed by the presence of a carcinomatous focus in the

body. Hansemann about sixty years ago pointed out that multiple and repeated carcinomas would be found in a much higher frequency if constitutional tendency were the deciding etiological factor. On the other hand, in the middle of the 19th century Bencke established the conception of frequent incidence of what he called a "tumor race," founded on his observations of different families in which numerous members produced several partially benign, partially malignant tumors. These antagonistic interpretations lead to a second problem: whether the constitutional tendency for the production of malignancies if and where it exists is a general one or confined to one organ. Under different conditions both possibilities may exist. An illuminating but only partial answer to the question has been given by Clara Lynch in a very striking experiment. Using two strains of mice, one in which thru cross breeding by the method devised by Maud Slye, a high incidence of spontaneous carcinoma of the breast was found, and a second strain with almost no spontaneous malignancies, she exposed both to identical tar painting of the skin. Both strains produced skin carcinomas at the same time with the same incidence and of the same type. This experiment proves that at least with such strains of mice the hereditary tendency for carcinoma is not a general one but a local one fixed to the breast tissue.

Some observation, from the human pathology leads to a similar conclusion. The carcinoma of the uterine cervix is one of the most frequent of all human carcinomas, ranging generally as the third most frequent carcinoma (the carcinoma of the breast and stomach, being first and second). By clinical experience it has been found that after amputation of the cervix, the new cervix, it means, the new external os, which is several millimeters higher than the physiological os in most of the cases stays unchanged. In some cases which are not too rare inflammatory erosions and ulcerations develop like the physiological cervix. Even when we don't accept the theory that inflammation and erosion play a great role in cervical carcinogenesis, a theory which seems not to be justified, — we would expect* a certain incidence of carcinoma after the amputation of the physiological cervix in the new cervix. As far as I have been able to check in the literature, in

spite of the many thousands of amputations of the cervix carried out all over the earth, only 3 or 4 carcinomas of the new cervix at the new external os have been observed. This discrepancy can only be explained by accepting the theory that the tendency of carcinoma is locally limited to the physiological external os.

A very interesting group of double carcinomas are the double carcinomas of symmetrical organs as Fallopian tubes or female breasts. When we see that the carcinoma of the tube, in about 70% of all cases, originates from primary foci in both tubes, which usually present no evidence of a previous high grade inflammation — whereas the overwhelming majority of severe salpingitis cases develops no carcinoma — we have to discard the importance of chronic inflammation and irritation as causative factors for carcinoma of the tube. The experience of double carcinoma in symmetrical organs is duplicated by the numerous cases of identical twins, who developed at the same time and in the same organ the same type of malignancy, — observations which stress the Constitutional factor in carcinogenesis. Our case represents two probably simultaneous carcinomas or possibly carcinomas of the successive type with a very short interval of time elapsing between their onsets. From the embryological and histological point of view, the rectum, and the cecum are related so closely together that we may classify the two carcinomas as developing from one organ. The question whether the metastases were produced by the cecal, or by the rectal carcinoma cannot be settled by histological or cytological criteria since the carcinomas of these two organs are too similar to permit safe differentiation. However, the complete analogy of the type of carcinoma cells in the rectal submucosa and most of the deposits, as well as, the clinical history justifies the conclusion that the metastases are due to the rectal carcinoma. Generally the carcinoma of the rectum in its expansion for a long time is limited to the perirectal tissue and the pelvic lymph nodes. At least for the first few months spread to the liver is rare. Anatomically it may be explained by the anastomosis between the rectal veins, the hemorrhoidal plexus, and the inferior mesenteric vein which opens into the portal vein. The quick spread and extensive metastasizing of the rectal carcinoma suggests a diminished resistance or a sensitization thru the previous cecal carcinoma.

*Corresponding to the similarity of anatomical and physiological conditions.

News of the State

PERSONALS · COMING EVENTS MARRIAGES DEATHS

Benjamin Goldberg, President of the American College of Chest Physicians addressed the Indiana State Medical Society at Indianapolis on September 24, subject "Organized Medicine and Tuberculosis."

A joint meeting of the Greene and Jersey County Medical and Dental Societies was held in White Hall on September 12th. Dr. Carroll W. Stuart of Chicago gave a lecture on "Surgery of the Head and Neck" calling attention to many interesting and unusual conditions that may develop in the region of the head and neck, some of which may originate in other organs. He emphasized the importance of careful diagnostic procedures before extraction of teeth in doubtful cases.

A paper on "The Prevention of Blindness Among Babies in Illinois," prepared by the Society for the Prevention of Blindness was read. The physicians of Greene and Jersey Counties are to be congratulated on their record as shown by the statistics for these two counties.

The Eye and Ear Research Fund, Inc., announces a two-day course in practical gonioscopy which will be given at the Illinois Charitable Eye and Ear Infirmary beginning Friday, October 24th, at 2 p. m., and finishing on Sunday, October 26th, at noon. Applications and requests for particulars should be addressed to the Dean of Instruction, 904 W. Adams St., Chicago, Illinois.

James H. Hutton was invited to address the Terre Haute Academy of Medicine at Terre Haute, Indiana on "Practical Points in Endocrine Diagnosis and Therapy," October 3rd.

COMING MEETINGS

- October 14 — Effingham County — Benwood Hotel, Effingham — 6:30 P. M. — Dr. Lewis T. Gregory of Urbana — "Gynecological Problems and Their Treatment"
- October 14 — Warren County — Hawcock's Cafe, Monmouth — 6:00 P. M. War Medicine program
- October 14 — Bureau County — Perry Memorial Hospital, Princeton — 6:30 — John S. Coulter, M. D. — "Home Treatment of Chronic Arthritis with Physical Agents"
- October 16 — Post Graduate Conference, Lincoln
- October 23 — Post Graduate Conference, Moline
- October 30 — La Salle County — Starved Rock Park Lodge, Starved Rock — 6:30 — James T. Case, M. D. — "Some Interesting Phases of Gastro-Intestinal Diagnosis"
- November 6 — 8th District Post-Graduate Conference, Danville
- November 6 — Southern Illinois Medical Society
- November 11 — Kankakee County Medical Society — 8:00 P. M.
- November 13 — Tri County Medical Society — 4:00 P. M., Galesburg
- November 18 — 7th District Post-Graduate Conference — Ottawa
-

October 14

SELECTIVE SERVICE MEETING

An interesting and unusual type of meeting will be held at Monmouth on Tuesday Evening, October 14, 1941, when Col. Paul G. Armstrong, Director of the Illinois Selective Service and Major Corwin S. Mayes, Chief Medical Officer of Selective Service will talk on the several phases of Selective Service.

Physicians and Dentists of Warren, Knox, McDonough and Mercer Counties including the personnel of the Medical Advisory Board No. 16 and of the five local draft boards in the four counties will be present.

The meeting has been arranged so that talks will be given by the two guest speakers, then a round table discussion of problems relative to examination of selectees, and the relationship between the local board examiners and the medical advisory board.

It is the desire of those arranging the meeting to endeavor in every way possible to see a reduction in the number of men approved by local examiners who are rejected at the induction station.

The meeting will be held at Haweock's Cafe, Monmouth beginning at 6:00 o'clock with dinner, then the program immediately following.

5th DISTRICT

Post Graduate Conference

October 16, Lincoln

Lincoln State School and Colony

Dr. N. A. Balding, President

Logan County Medical Society, Presiding

12:30-1:30 — Luncheon — complimentary

1:30-2:00 — "Poliomyelitis" — Harry Leichenger, M. D. — Assistant Professor of Pediatrics, University of Illinois College of Medicine

2:00-2:40 — "Coronary Artery Disease" — Chauncey C. Maher, M. D. Assistant Professor of Medicine, Northwestern University Medical School

2:40-3:15 — Tour of Lincoln State School and Colony

3:15-3:45 — "Office Gynecology" — Herbert E. Schmitz, M. D. Chairman Department of Obstetrics & Gynecology, Loyola University School of Medicine

4:00-5:00 — Round Tables — led by Gerald M. Cline, M. D. — Bloomington — Pediatrics.

Hermon Cole, M. D. — Springfield — Medicine — Gynecology

6:00-7:00 — Dinner

7:15-8:00 — "The Problem Child" — Bert I. Beverly, M. D. Assistant Professor of Pediatric Psychiatry Rush Medical College
"Surgery" —

4th COUNCILOR DISTRICT POST GRADUATE CONFERENCE

October 23, 1941

Dr. Paul P. Youngberg, President Rock Island County Medical Society, Presiding

1:00-2:00 P. M. — Luncheon, compliments of Rock Island County Medical Society

2:00-2:30 P. M. — "Common Diseases of the Skin and Their Management"

Cleveland J. White, M. D. — Assistant Professor of Dermatology Northwestern University Medical School

2:30-3:30 P. M. — "Heart Clinic" —

Robert S. Berghoff, M. D. — Clinical Professor of Medicine, Loyola University Medical School

Donald A. Hirsch, M. D. — Clinical Instructor of Medicine, Loyola University Medical School

3:30-4:00 P. M. — "Bowel Obstruction in the New-born Infant"

Edwin M. Miller, M. D. — Clinical Professor of Surgery, Rush Medical College

4:00-5:00 P. M. — Round Tables — Dermatology, Medicine, Surgery

5:00-6:00 P. M. — Social Hour

6:00-7:00 P. M. — Dinner

7:30-8:30 P. M. — "The Duties of the Medical Officer" —

Ford K. Hick, M. D., Captain, General Dispensary, United States Army, Chicago

AMERICAN CONFERENCE ON INDUSTRIAL HEALTH

November 5-6

Under the auspices of the American Association of Industrial Physicians and Surgeons the American Conference on Industrial Health will hold its Second Annual Meeting on November 5 and 6, 1941 at Chicago Towers, Chicago.

The opening session will be a symposium on the technical problems of industrial health on the basis that health supervision in industry involves the adjustment of the working environment to the employee; and the adjustment of the employee to the working environment. The afternoon session will be a symposium on the economics of industrial health, including organization and cost of a health service, and discussion on the value of industrial health service to the employer, the employee and the public. The second morning will be given over to a symposium on the social implications of industrial health. Sessions will close with a schedule of plant medical department inspections, by special arrangements with local industries.

8th COUNCILOR DISTRICT POST GRADUATE CONFERENCE

November 6, 1941

Hotel Wolford, Danville, Illinois

12:30-1:30 — Luncheon

1:30-2:00 — "Management of Prolonged Labor" — Frederick H. Falls, M. D.

2:00-2:30 — "Present Status of Effective Vitamin Therapy" — John R. Vonachen, M. D.

2:30-3:00 — "Office Gynecological Procedure or Treatment" —

3:00-4:00 — Heart Clinic with presentation of cases

4:00-4:30 — subject not definite

4:30-5:30 — Round Table group meetings

6:00-7:00 — Dinner

7:00-7:45 — "Medical Management of Upper Gastro-

Intestinal Tract Ulcer" — Ralph Brown, M. D.
7:45-8:30 — "Surgical Management of Upper Gastro-Intestinal Tract Ulcer" — Raymond W. McNealy, M. D.

PROGRAM

Sixty-seventh Annual Meeting
THE DISTRICT MEDICAL SOCIETY OF
CENTRAL ILLINOIS
THURSDAY, NOVEMBER 6, 1941.
SPRINGFIELD, ILLINOIS

MORNING SESSION — St. John's Hospital

- 8:30 Springfield Tumor Diagnostic Service
(This conference only will be held at Springfield Hospital)
- 9:30 Clinicopathological Conference
Drs. H. Steen and Wm. DeHollander, St. John's Hospital
Drs. A. Vass and D. Sirca, Springfield Hospital
- 11:15 Cardiac Clinic
Dr. Fred M. Smith, Iowa City, Ia.

12:30 Luncheon

AFTERNOON SESSION — St. John's Hospital

- 1:30 Business Meeting
- 2:00 "The Basic Problems of Acute Appendicitis"
Dr. Frederick F. Boyce, New Orleans, La.
- 3:00 "Diaphragmatic Hernia"
Dr. Kenneth H. Schnepf, Springfield, Ill.
- 3:30 Intermission
- 4:00 "Encephalitis of Virus Origin"
Dr. H. J. Shaughnessy, Chicago, Ill.
- 4:45 "Non-specific Infections of the Urinary Tract"
Dr. Burle B. Madison, Springfield, Ill.

EVENING SESSION — Elks Club

- 6:00 Cocktail Party
Compliments Sangamon County Medical Society
- 6:30 Dinner — Elks Roof
- 8:00 "Certain Aspects of the Treatment of Cardiac Failure"
Dr. Fred M. Smith, Iowa City, Ia.
- 8:45 "Cancer of the Stomach"
Dr. Frederick F. Boyce, New Orleans, La.

TRI-COUNTY MEETING

November 13, 1941
Galesburg, Illinois

- 4:00 P. M. — "The Common Blood Diseases Seen in General Practice" — Howard L. Alt, M. D. — Assistant Professor of Medicine Northwestern University Medical School
- 5:00 P. M. — "Office Gynecology" — Ralph A. Reis, M. D. — Assistant Professor of Obstetrics and Gynecology, Northwestern University Medical School
- 6:00 P. M. — DINNER
- 7:30 P. M. — "The Clinical Significance of Hoarseness" — motion pictures in kodachrome of the various laryngeal conditions causing hoarseness. Francis L. Lederer, M. D. — Professor and Head

Department of Laryngology, Rhinology and Otolaryngology University of Illinois College of Medicine.
8:30 P. M. — "Peripheral Vascular Disease" — Geza deTakats, M. D. — Associate Professor of University of Illinois College of Medicine.

The Thirteenth Annual William T. Belfield Memorial Lecture will be delivered on Thursday, October 16, 1941, at the Palmer House, at 8 P.M.

The lecture, "Evolution in Urology," will be delivered by Henry G. Bugbee, M.D., New York, New York.

MILITARY SURGEONS MEETING

Oct. 29th — Nov. 1st

Brown Hotel, Louisville, Ky.

Among the many medical meetings of this year is that of The Association of Military Surgeons of the United States to be held Oct. 29th - Nov. 1st at the Brown Hotel, Louisville, Ky.

All members of the medical profession are invited to attend as guests and it is particularly hoped that as many members of the Medical Defense Committees as possible will come.

War medicine and surgery has changed considerably since the previous emergency. Mechanization of armies and air bombardments have created new and difficult problems in traumatic surgery and methods of treatments of wounds and extreme abrasions.

For every member of the profession who can be present at this meeting there will be something of special interest.

The session concludes with a mass review of Military Medicine and an inspection of Fort Knox.

MARRIAGES

PHILIP A. FUQUA, Joliet, Ill., to Miss Alice Ruth Campbell of Omaha, June 15.

SAMUEL PILCHMAN, Ladd, Ill., to Miss Adelyn Sylvia Baker of La Salle in Brooklyn, July 30.

G. ROGERSON WOLTMANN, M. D. of Chicago and Miss Betty Thomas of Urbana, Illinois were married on August 2, 1941.

DEATHS

EUGENE LESTER BAKER, Oak Park, Ill.; University of Illinois College of Medicine, Chicago, 1925; major, 108th medical regiment, Illinois National Guard, Camp Forrest, Tenn.; aged 42; was killed, July 20, in an automobile accident.

ARTHUR ROOSEVELT BOWLES, Chicago; Yale University School of Medicine, New Haven, Conn., 1931; received his bachelor's degree from Columbia University, New York, in 1927; served a two year medical internship at the New Haven Hospital and a one year pediatric internship at the Strong Memorial Hospital,

Rochester, N. Y.; during the winter of 1934-1935 studied hospital administration at the University of Chicago on a Rosenwald fellowship; from 1935 to 1937 was assistant director and during 1937 and 1938 acting director of the Grasslands Hospital, Valhalla, N. Y.; since October 1939, hospital inspector on the staff of the Council on Medical Education and Hospitals of the American Medical Association; aged 35; died, September 3, in the City Hospital, Indianapolis, of malignant hypertension with nephritis.

HERSCHEL VICTOR BRUNKER, Casey, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1915; served during the World War; aged 53; died, July 7.

JOSEPH SWISHER CUNNINGHAM, Gibson City, Ill.; Illinois Medical College, Chicago, 1902; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; member of the Illinois State Medical Society; aged 67; died, August 21.

CHARLES SUMMER DAVIS, Champaign, Ill.; Eclectic Medical Institute, Cincinnati, 1890; served during the World War; aged 75; died, July 31, of heart disease.

ERNEST CHRISTIAN DAY, Chicago; Rush Medical College, Chicago, 1936; member of the Illinois State Medical Society; captain, 108th medical regiment, Illinois National Guard, Camp Forrest, Tenn.; aged 37; was killed, July 20, in an automobile accident.

ROY HENRY GARM, Beardstown, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; served during the World War; aged 62; died, July 23, in the Norbury Sanatorium, Jacksonville, of cerebral hemorrhage.

PHILIP CONSTANT GOERGEN, Chicago; Loyola University School of Medicine, Chicago, 1919; examining physician for the draft board; aged 56; died, July 2.

PHILIP GRIESBAUM, Lebanon, Ill.; Washington University School of Medicine, St. Louis, 1910; member of the Illinois State Medical Society; president of the high school board of education; aged 57; died, July 29, in Jacksonville.

WALTER MARION HAGGETT, Chicago; College of Physicians and Surgeons, Keokuk, Iowa, 1887; member of the Illinois State Medical Society; aged 83; died, July 17.

HORACE BLAKE HANNON, Chicago; College of Physicians and Surgeons of San Francisco, 1903; aged 66; died, August 8.

JOHN I. HIGGS, East St. Louis, Ill.; Missouri Medical College, St. Louis, 1885; aged 81; died, July 15, in Sparta of coronary occlusion.

FRANK BRENNAND KIRBY, Evanston, Ill.; Jefferson Medical College of Philadelphia, 1902; aged 63; died, August 20.

LEWIS HERTZ LIPPMAN, Chicago; Chicago College of Medicine and Surgery, 1913; member of the Illinois State Medical Society; aged 53; died, August 9,

in St. Mary's Hospital, Kankakee, Ill., of coronary thrombosis.

WILLIAM HINKLE MASSEY, Surgeon Lieutenant Commander, United States Navy, retired, Peoria, Ill.; Cooper Medical College, San Francisco, 1912; entered the navy Aug. 17, 1914 and retired June 14, 1923 for incapacity resulting from an incident of service; served during the World War; aged 55; died, August 16.

MARY R. MCCONAHY, Evanston, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1890; aged 101; died, July 26, of arteriosclerosis.

ALICE MAY PARSONS, Chicago; Rush Medical College, Chicago, 1933; aged 44; died, August 12, in the Chicago Memorial Hospital of chronic rheumatic heart disease.

WILLIAM BUCKLEY PECK, Freeport, Ill.; Rush Medical College, Chicago, 1897; fellow of the American College of Surgeons; founder and managing director of the Inter-State Postgraduate Medical Association of North America since its inception in 1916; formerly on the staffs of St. Francis Hospital and the Deaconess Hospital; aged 70; died, August 20, of coronary heart disease.

KATHERINE BRAINERD RICH, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; aged 77; died, August 14, in Henrotin Hospital of cerebral hemorrhage.

HYMAN B. SHAPIRO, Chicago; Rush Medical College, Chicago, 1903; aged 63; died, June 11, of gastric hemorrhage.

CHARLES JOSEPH SWAN, Evanston, Ill.; Hahnemann Medical College and Hospital, Chicago, 1890; Northwestern University Medical School, Chicago, 1909; fellow of the American College of Surgeons; served during the World War; formerly on the staff of the Evanston Hospital; aged 76; died, August 6, of coronary occlusion.

JOHN LINTON JOSEPH VALLELY, Chicago; Northwestern University Medical School, Chicago, 1910; on the staffs of the Augustana and Edgewater hospitals; aged 73; died, August 7, of coronary sclerosis.

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Severe rickets still occurs—even in sunny climates

Vitamin D has become such an accepted practice in infant feeding that it is easy to think that rickets has been eradicated. However, even deforming rickets is still seen, as witness the above three contemporary cases from three different sections of the United States, two of them having well above the average annual sunshine hours for the country. In no case had any antiricketic been given during the first two years of life. *It is apparent that sunlight did not prevent rickets.* In other cases of rickets, cod liver oil was given inadequately (drop dosage) and even this was continued only during the winter months.

To combat rickets simply, inexpensively, effectively—
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This highly potent source of natural vitamins A and D, if administered regularly from the first weeks of life, will not only prevent such visible stigmata of rickets as pictured above, but also many other less apparent skeletal defects that might interfere with good health. What parent would not gladly pay for this protection! And yet the average prophylactic dose of Oleum Percomorphum costs less than one cent a day. Moreover, since the dosage of this product is measured in drops, it is easy to administer Oleum Percomorphum and babies take it willingly. Thus there is assurance that vitamin D will be administered *regularly*.

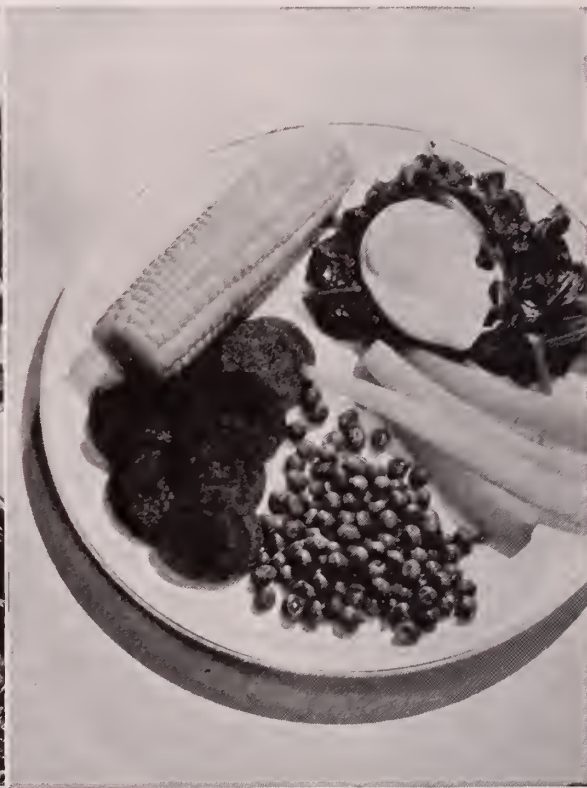
Oleum Percomorphum offers not less than 60,000 vitamin A units and 8,500 vitamin D units (U.S.P.) per gram. Supplied in 10 and 50 c.c. brown bottles, also in 10-drop soluble gelatin capsules, each offering not less than 13,300 vitamin A units and 1,850 vitamin D units, in boxes of 25 and 100.

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In choosing an adequate, well-balanced diet, it is important to realize that it is not the inclusion of a food item in the diet which matters *but its actual nutrition value when consumed that counts.*

Elixir 'B-G Phos' is an exceptionally palatable, standardized preparation containing all the elements of the vitamin B-complex in

natural proportions, since the B-complex is derived from a natural source. Minerals essential to proper nutrition are present as glycerophosphates. Elixir 'B-G Phos' is indicated as a dietary supplement to aid in prevention or to correct deficiencies of the vitamin B-complex and minerals in patients of all ages, but particularly during childhood, pregnancy, febrile illnesses, convalescence, and old age.

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Each fluidounce of Elixir 'B-G Phos' contains:
 Vitamin B₁200 U.S.P. Units
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Gm. calcium, 0.903 Gm. phosphorus, 11.9 mg. iron, 0.75 mg. copper, 2953 I.U. vitamin A, 432 I.U. vitamin D, 302 I.U. vitamin B₁, 511 Sherman-Bourquin units vitamin G, 8.90 mg. pantothenic acid, and 0.21 mg.† pyridoxin.

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*Based on average reported values for milk

†Provided by the dry Ovaltine itself

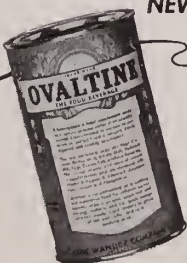
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Book Reviews

ESSENTIALS OF ENDOCRINOLOGY: by Arthur Grollman, Ph.D., M.D., Associate Professor of Pharmacology and Experimental Therapeutics, Johns Hopkins University School of Medicine, Baltimore. Price \$6.00; J. B. Lippincott Company, Philadelphia; 1941.

The author has endeavored to present his subject in a manner which makes it easy for the reader to follow his line of thought, and also makes it quite obvious to all, that Endocrinology is rapidly becoming an important branch of Medicine. He clearly outlines the present day knowledge of this important subject so that the book will be of interest to the general practitioner who first sees the case, as well as the physician who desires all available information on the subject.

ORAL PATHOLOGY: A Histological, Roentgenological and Clinical Study of the Diseases of the Teeth, Jaws and Mouth. By Kurt H. Thoma, D.M.D., Professor of Oral Surgery and Chas. A. Brackett, Professor of Oral Pathology; Harvard University. 1306 pages, with 1370 illustrations. The C. V. Mosby Company, St. Louis; 1941; Price \$15.00.

The book although of particular interest to the Dentist and Oral Surgeon, is of much value to the General Surgeon who frequently encounters in his practice, many of the conditions so well described. The authors have covered their subject by dividing it into twelve important parts, so that pathologic, traumatic, developmental and infective conditions of the teeth, jaws, mouth and adjacent glandular structures are thoroughly considered.

The many types of tumors of these structures are well outlined with the differential diagnosis to aid the Oral Surgeon to make the proper diagnosis and institute the best known treatment for the case.

The reviewer heartily recommends this monumental work to all professional men interested in oral surgery and diseases of these structures so well covered in the profusely illustrated book.

COLLECTED PAPERS OF THE MAYO CLINIC: Edited by R. M. Hewitt, M.D., H. L. Day, M.D., J. R. Eckman, A.B., A. B. Nevling, M.D., J. R. Miner, B.A., Sc.D., and M. Katherine Smith, B.A. Vol. XXXII — 1940, W. B. Saunders Co., Philadelphia; Price \$11.50.

As usual the "Mayo Clinic" is replete with much interesting information for the general practitioner, the Surgeon, and others in the practice of Medicine regardless of their specialty. The book consists of many papers, reprints and abstracts covering many subjects in Medicine, and it literally is the review of medicine for the year of 1940. The book is well illustrated which adds materially to its attractiveness. This voluminous work should be in the library of the physician who desires to keep up with the progress of modern medicine.

AMERICAN ILLUSTRATED MEDICAL DICTIONARY, New (19th) Edition, W. B. Saunders Company, Philadelphia. Prices: Plain, \$7.00; Thumb indexed, \$7.50.

The new edition of the American Illustrated Medical Dictionary contains a wealth of additional material. Over 2000 new words have been added, many of which have not as yet been included in any other Dictionary. Also included are new drugs, serums and vaccines, treatments, operations, tests, signs and symptoms. The volume also contains over 100 valuable tables of tests, dosage, muscles, nerves, formulae, etc.

Books Received

The following books have been received for reviewing, and are herewith acknowledged. This listing should be considered as a sufficient return for the courtesy of the sender. Books that appear to be of unusual interest will be reviewed as space permits each month. Readers desiring additional information relative to books listed, may write the Editor who will gladly furnish same promptly.

MANUAL OF THE DISEASES OF THE EYE: For Students and General Practitioners by Charles

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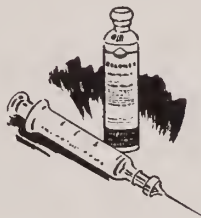
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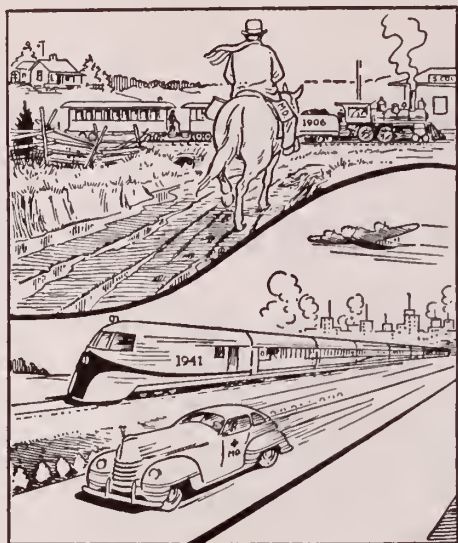
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BOOKS (Continued)

H. May, M.D., Consulting Ophthalmologist to Bellevue, Mt. Sinai and French Hospitals, New York. Seventeenth edition, Revised with the assistance of Charles A. Perera, M.D., Associate in Ophthalmology, College of Physicians and Surgeons, Medical Department of Columbia University, N. Y., Assistant Attending Ophthalmologist, Presbyterian Hospital, New York, William Wood and Company, Baltimore.

SULFANILAMIDE AND RELATED COMPOUNDS IN GENERAL PRACTICE: by Wesley W. Spink, M.D., Associate Professor of Medicine, University of Minnesota Medical School. The Year Book Publishers, Inc., Chicago. Price \$3.00.

SYNOPSIS OF APPLIED PATHOLOGICAL CHEMISTRY: by Jerome E. Andes, M.S., Ph.D., M.D., F.A.C.P., Director of Department of Health and Medical Advisor, University of Arizona, Tucson; Formerly Assistant Professor of Pathology and Clinical Pathology, West Virginia University Medical School, and A. G. Eaton, B.S., M.A., Ph.D., Assistant Professor of Physiology, Louisiana State University School of Medicine, New Orleans. The C. V. Mosby Company, St. Louis.

HANDBOOK OF COMMUNICABLE DISEASES: by Franklin H. Top, A.B., M.D., M.P.H., Director, Division of Communicable Diseases and Epidemiology, Herman Kiefer Hospital and Detroit Department of Health; Associate Professor of Preventive Medicine and Public Health, Wayne University, College of Medicine; Special Lecturer in Communicable Disease and Epidemiology University of Michigan; Major, Medical Reserve Corps, United States Army; and Collaborators. The C. V. Mosby Company, St. Louis.

CARDIAC CLINICS, A Mayo Clinic Monograph by Fredrick A. Willius, B.S., M.D., M.S. in Medicine. Head of Section of Cardiology, Mayo Clinic, and Professor of Medicine, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, Rochester, Minn. The C. V. Mosby Company, St. Louis.

(Continued on page 28)



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BOOKS (Continued)

BODY MECHANICS IN HEALTH AND DISEASE: by Joel E. Goldthwait, M.D., F.A.C.S., LL.D., Lloyd T. Brown, M.D., F.A.C.S., Loring T. Swaim, M.D., John G. Kuhns, M.D., F.A.C.S. with a Chapter on the Heart and Circulation as Related to Body Mechanics by William J. Kerr, M.D., F.A.C.P. J. B. Lippincott Company, Philadelphia. Price \$5.00.

Hygiene; Harvard University. Lea & Febiger, Philadelphia. Price \$1.50.

A MANUAL OF BANDAGING, SPLINTING AND STRAPPING: by Augustus Thorndike, Jr., M.D., F.A.C.S., Associate in Surgery, Harvard Medical School; Surgeon to the Department of

A TEXTBOOK OF PATHOLOGY: Edited by E. T. Bell, M.D., Contributors: E. T. Bell, M.D., Professor of Pathology, B. J. Clawson, M.D., Professor of Pathology, J. S. McCartney, M.D., Associate Professor of Pathology, University of Minnesota, Minneapolis, Minnesota. Fourth edition, enlarged and revised, published in 1941. Octavo, 931 pages, illustrated with 431 engravings and 2 colored plates. Price \$9.50. Lea and Febiger, Philadelphia, Pa., publishers.

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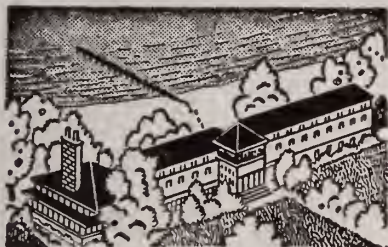
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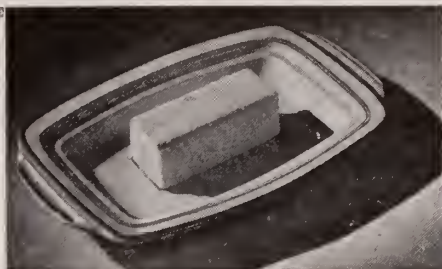
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DECLARE WAR ON DISEASE

The half-million men who have been sent to the South for their army training are in the most unhealthy districts in the United States. As Dr. C.-E. A. Winslow, professor of Public Health at Yale Medical College, points out in McCall's Magazine, the army is taking careful precautions to protect the health of the men within the boundaries of the camps, but the danger of infection from venereal disease and intestinal diseases in communities outside the military reservations is acute. He cites examples of a Florida camp located in a county which does not have a single health officer, of a Georgia camp occupying parts of three counties, none of which ever had a full-time health department, and of a camp in the midst of Louisiana malarial swamps.

The army is aware of the danger. It has appropriated money for mosquito control and is setting up CCC camps to give full-time aid in this work. It is borrowing experts from the Public Health Service to try to improve extra-cantonment sanitation. It also asks that an aroused public opinion force these Southern communities to clean house, since the army has no direct authority outside the camps and must depend on civilian agencies. But the health of these half-million men cannot wait for poverty-stricken Southern counties to disinfect themselves. The United States Public Health Service must be put on a war footing at once and given ample funds and full authority to stop epidemics before they start.—*The New Republic*, June 23, 1941.

TEST TINY X-RAY FILM

PHILADELPHIA—A miniature X-ray film which would reduce materially the costs of medical examinations soon may be used by both the Army and Navy, two Philadelphia radiologists have revealed.

Dr. Bernard Pierre Widman and Dr. W. Edward Chamberlain, Professors of Radiology at the University of Pennsylvania and Temple University, respectively, said the smaller film is now in process of experimentation, but early tests have been successful.

The new process utilizes a 35 mm film which costs about 1 cent. The present X-ray film generally used is 14 by 17 inches and costs about sixty-five cents. Moreover, it was pointed out, the smaller film requires only a portable camera instead of expensive stationary equipment.

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(Continued on page 36)

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The U. S. Director of Civilian Defense, Mayor F. H. LaGuardia, announces the training of 100,000 Volunteer Nurses' Aides during the next twelve months, in collaboration with the American National Red Cross and the major hospitals of the country. The program is in preparation for a great expansion in hospital beds which may be required during the National Emergency, at a time when the already overburdened nursing facilities of civilian hospitals are seriously depleted due to the demands of our military and naval establishments and the increasing needs of public health and industrial hygiene services.

The growing deficiency in hospital personnel is now being met in part through the training of large numbers of paid subsidiary hospital workers by the NYA, WPA and other agencies.

The training program for Volunteer Nurses' Aides is designed to expand the effectiveness of the trained nurse in hospitals, clinics and field nursing services by supplying her with intelligent assistants who can work under her direction.

The curriculum of instruction has been prepared by the Medical Division of the Office of Civilian Defense, the American National Red Cross and the Federal Security Agency. Eligibility is limited to women between the ages of 18 and 50 who have had at least a high school education or its equivalent and who are physically fit. The course will provide 80 hours of intensive instruction in a period of seven weeks. The first half of the course will be given in the local Red Cross chapter house in collaboration with local hospitals and nursing organizations. This will constitute the probationary period and will require two hours of instruction daily on

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five days a week for four weeks.

The second half of the course will consist of supervised practise in a hospital which has been designated by the Office of Civilian Defense and the Red Cross as a Training Center. The American National Red Cross will assist the hospital to provide competent instructors and nursing supervisors.

Those who complete the course will be enrolled in the Volunteer Nurses' Aide Corps of the American Red Cross with the assurance that they will play an important role in Civilian Defense. They will retain their membership in the Corps only as long as they continue to render adequate service during the period of the National Emergency. This is defined as 150 hours of volunteer service in a hospital, clinic or field nursing organization in at least one 3 month period in each calendar year.

The Office of Civilian Defense and the American National Red Cross will provide for this continuing service by arrangement with local hospitals and field nursing agencies. For this purpose, the Red Cross will maintain a Placement Bureau, which will allocate Volunteer Nurses' Aides to the following types of nursing

service: Hospitals and clinics, visiting nurse (home visiting) agencies, health departments, school health services and industrial hygiene clinics.

By serving in this manner as assistants to qualified nurses, their training will be continued. In the event of sudden emergencies during a period of national crisis, they will then be immediately available for reassignment to hospital or field duty by the Office of Civilian Defense. There will be opportunity for some to serve as members of the Mobile Medical Field Units which are being organized in hospitals along both seaboards and in industrial centers in the interior, according to plans announced this week by the U. S. Director of Civilian Defense.

Volunteer Nurses' Aides will wear the uniforms and insignia of Civilian Defense. The new insignia for Nurses' Aides will be a red cross within the triangle and circle of the OCD, indicating that the Aide was enrolled and trained by the Red Cross to serve in Civilian Defense.

Applicants may enroll at the Red Cross chapter house and the courses will begin in each locality as hospital arrangements are completed.

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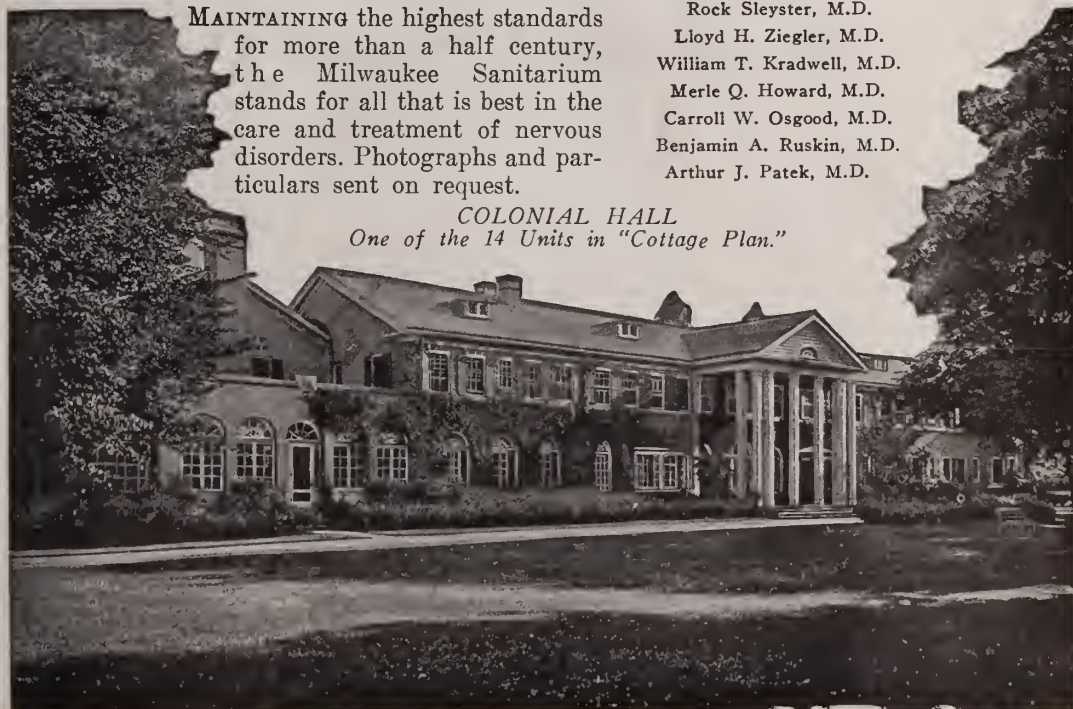
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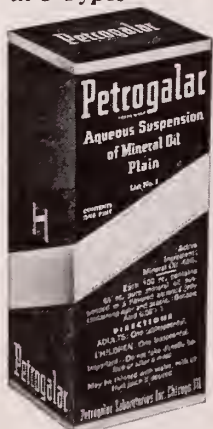
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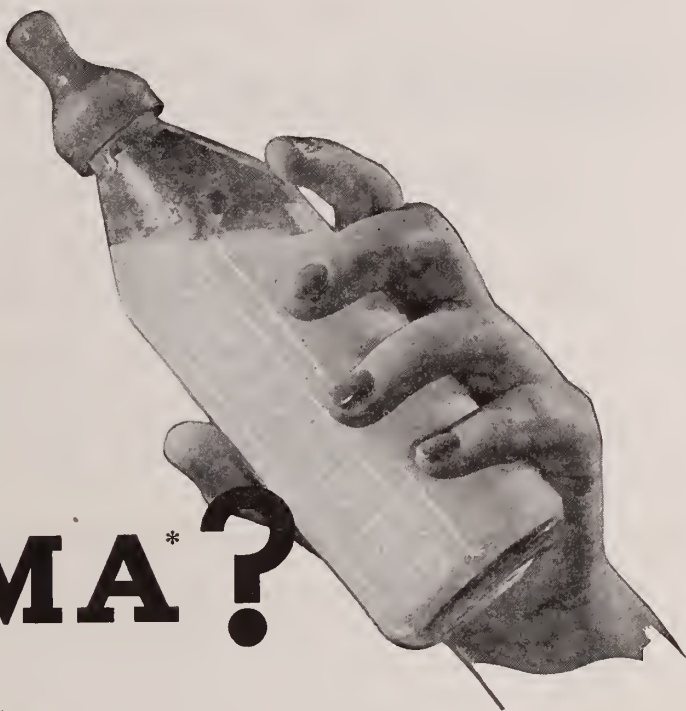
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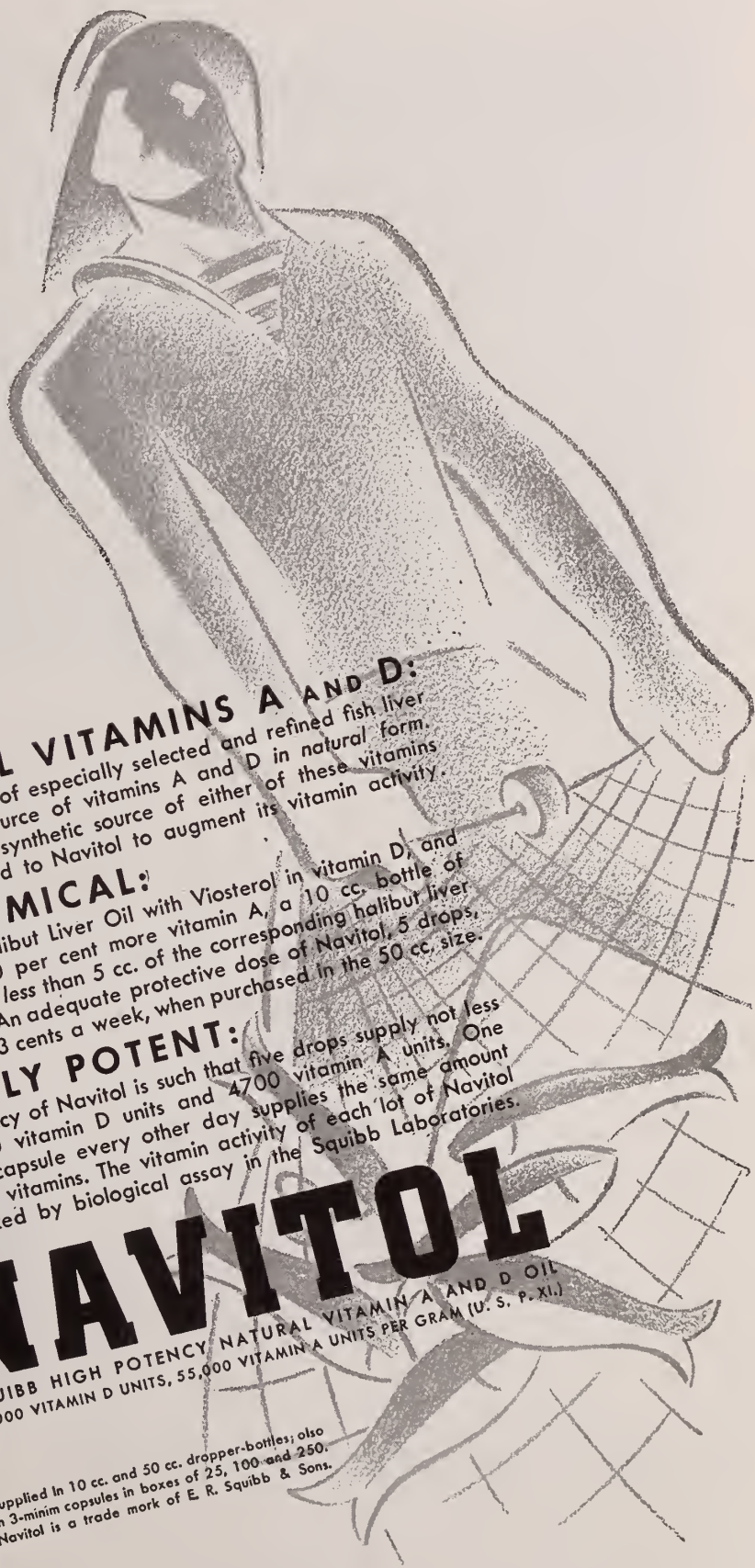
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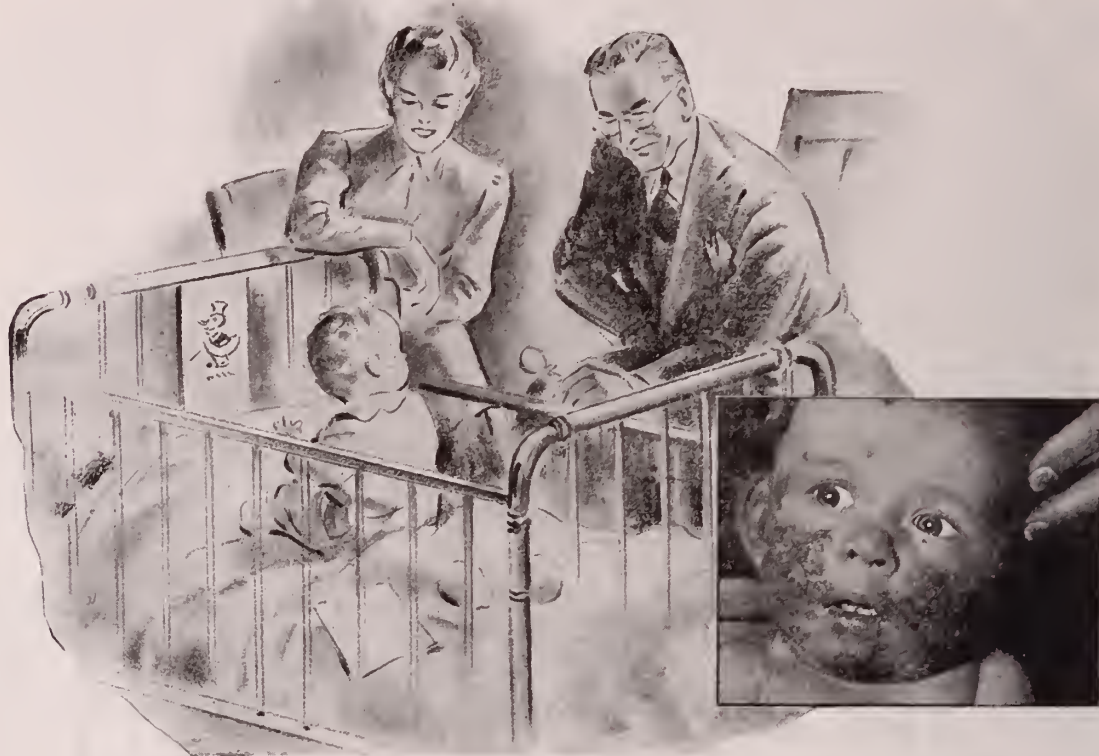
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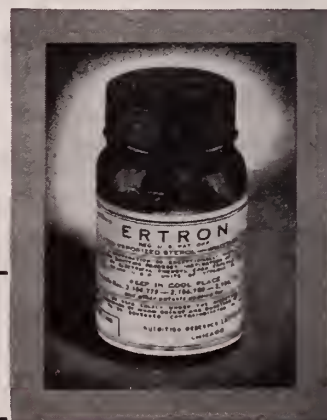
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*Farley, R. T., Spierling, H. F. and Kraines, S. H., Indus. Med. (Aug.) 1941.

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The Illinois Medical Journal

November 1941

VOL. 80, NO. 5

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Editorials

POST GRADUATE CONFERENCES

Two years ago the present method of presenting post-graduate education throughout Illinois was adopted by the Post-Graduate Committee of the Illinois State Medical Society. During the 1940-1941 series they were very popular with the physicians, and nine such conferences were attended by approximately 1,500 doctors.

During the past summer the Committee held meetings after receiving suggestions from the component county medical societies, and then scheduled ten post-graduate conferences for the 1941-1942 series. The first of this series was presented on September 4, 1941 at Mt. Vernon, the second at Aurora on October 8th, the third at Lincoln on October 16th, the fourth at Moline on October 23rd, and the fifth at Danville on November 6th. These conferences have been well attended, and there was marked enthusiasm on the part of those present.

In most instances a noon-day luncheon with the compliments of the host county society, opened the proceedings. From three to five speakers were scheduled for the afternoon program, and in the late afternoon, an hour was devoted to round table discussions with each of the afternoon speakers appearing in separate rooms to answer questions on the subject which had been presented. This feature has been very popular, and the entire time allotment has been utilized to good advantage in each instance.

At several of the conferences a clinical hour was scheduled for the presentation of several unusual cases, whose histories and special examination reports had been recorded previously,

then the diagnosis, differential diagnosis and recommendations for treatment were carefully outlined. Clinics on heart diseases, skin disorders, endocrine disturbances, and a few other popular subjects, have been presented at the Conferences.

Following the dinner the evening program was presented with one or two speakers scheduled for the session. Frequently an internist and a surgeon will be scheduled to present the medical and surgical aspects of some interesting subject, such as biliary tract disease, colitis, or other subjects having both medical and surgical aspects.

In several of the programs to be presented before the end of this year, a speaker from some Army service has been scheduled for a talk on medical services in the armed forces. These talks are proving to be quite popular.

In arranging the programs for these Conferences, the Committee first solicited the suggestions of the medical societies within the District to be served, so see what type of program they desired. With the Councilor for that district, they have selected the subjects and speakers, then the Committee has endeavored to make all the necessary arrangements. In this way, the physicians attending the conferences get the type of program they most desire. No registration fee is made as the Society bears all the expense of speakers, programs and postage.

Another interesting service in connection with these Post-Graduate Conferences which was started recently, has been most popular with those attending. For one dollar, mimeographed copies of the addresses given at all the Confer-

ences during the year will be mailed to those subscribing. This means from 50 to 60 complete papers on many subjects will be delivered at less than two cents each. An increasing percentage of those present at succeeding Conferences have been registering for this service, and requests have been received from physicians unable to attend, for copies of the talks to be mailed.

The Post Graduate Committee of the Illinois State Medical Society is desirous of giving the members the type of post-graduate service they most desire, and suggestions and criticisms are always solicited.

THE REHABILITATION PROGRAM

President Roosevelt recently announced that a plan is to be developed in the near future to rehabilitate many of those men who were turned down for military service. He gave the information that perhaps 200,000 of these men could be so rehabilitated that they could qualify for some type of military duty.

It is said that recently released statistics from

the Selective Service Headquarters, show that approximately 1,000,000 men have been rejected on account of physical, mental or educational conditions. General Hershey, Director of Selective Service, gave the opinion that 200,000 of these men could be made fit for general military service as shown by reports from local draft boards. Under the plan suggested, the federal government will pay the costs for treatment by the local physicians.

The selective service report gave the principal causes for rejections as follows:

Dental defects	20.9%
Eye defects	13.7%
Cardio-vascular diseases	10.6%
Musculo sketetal defects	6.8%
Veneral diseases	6.3%
Mental and nervous diseases	6.3%
Hernia	6.2%
Defects of ears	4.6%
Defects of feet	4.0%
Pulmonary defects, including tuberculosis	2.9%
Miscellaneous	17.7%

In his press conference, when this release was

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given out, the President was asked by what authority the registrants could be compelled to undergo the rehabilitation medical and dental program. He replied that he had legal opinions as to how this could be made compulsory, although in his opinion, the majority of rejected draftees would be willing to have these defects remedied at the expense of the Government.

From the above statistics, it is obvious that more than one-third of the rejections are because of dental and eye defects, while more than 6% are due to venereal disease. It is possible for physicians and dentists to correct these conditions easily. Another 6% having hernias, can be rehabilitated by the surgeons. It is stated that approximately 100,000 draftees were rejected because of the lack of a fourth grade education.

It seems quite likely that within a short time, more information on this subject of rehabilitation will be forthcoming, and the role of the medical and dental professions in this program will be outlined.

RENAL FAILURE FOLLOWING BLOOD TRANSFUSION

The increased use of transfusion of blood has been attended by an increase in the number of complications which arise as a direct result of the procedure. Of all these the most serious and the most frequently fatal is massive infarction of the kidneys with free pigment liberated by destruction of the erythrocytes added to the circulation. This disaster has in the past been associated in the medical mind largely with those cases in which some error in grouping has resulted in the use of a grossly incompatible blood. There is, however, evidence to show that severe and even fatal renal failure may follow transfusions of blood in which incompatibility cannot be demonstrated by ordinary methods. Daniels, Lecnard and Holtzman* record thirteen cases of severe renal insufficiency with seven deaths following blood transfusion, which have occurred in recent years in Washington hospitals. Of these patients all except one received blood from their own group and in only one case did subsequent re-checking show that the group was wrong. In several others the donor's cells were hæmolyzed by the recipient's serum but only with the lapse of time or where special methods were used to demonstrate it. In several fatal cases detailed investigation failed to show any incompatibility of the bloods. All these patients progressed to a state of uræmia with nitrogen retention, and passed small

amounts of dark urine loaded with pigment. Where post-mortem examinations have been made in cases such as these the lesion in the kidneys is striking and uniform; the renal tubules are choked with granular pigment derived from hæmoglobin; degeneration and necrosis of the tubular epithelium is present and the interstitial tissue is the site of an inflammatory leucocytic infiltration with oedema.

The problem in events such as this, which are by no means so uncommon as may be thought, resolves itself into a study of the factors which promote hæmolysis in shed blood. In some instances the lysis of the cells and the freeing of the hæmoglobin occurs before the blood is given; such is the case when hæmolysed blood from a bank is used or when hæmolysis results from excessive agitation of fresh citrated blood to prevent clotting. Temperature is an important factor; overheating can cause disintegration of the red cells and variations in temperature even though small in degree are dangerous. Cold blood can be given in perfect safety and it would seem likely that warming blood adds an extra hazard to transfusion.

When intravascular hæmolysis is considered the problem becomes more complicated. We assume that isohæmolysis is always preceded by isogglutination. Upon this hypothesis rests our present examinations for compatibility of blood by grouping and by cross-matching the donor's cells with the recipient's serum. It is possible that hæmolysis in some cases may occur without agglutination, and thus the ordinary methods of typing will not always prevent the transfusion of incompatible blood.

At present there is no call to alter laboratory methods to detect minor degrees of incompatibility; indeed, even if they were desirable, prolonged *in vitro* tests to determine compatibility could not be carried out prior to every transfusion. What is required is increased recognition of the hazards of transfusion, respect for which have waned with the perfection of technique. Just as in the case of any major surgical procedure and quite apart from the condition of the patient, every transfusion carries its own special risk. Most of the dangers are avoided by accurate blood grouping and careful attention to method. Outside this there still remains a small group in which serious ill effects will occur despite all precautions. These are a salutary reminder that transfusion should never be lightly undertaken and only after due and weighty consideration has been given to the indications in each individual case.

LAW BARS ALIEN DOCTORS

Doctors who are citizens of countries which deny licenses to U. S. physicians are denied the privilege of entering private practice in California, under a new law in that State. Governor Culbert L. Olson's previous veto of the measure was overridden by both houses of the legislature. Canadian doctors and aliens already serving internships here are not affected by the new legislation.

*The Journal of the American Medical Association, March 22, 1941.

Correspondence

CHILDREN'S BUREAU NEEDS MATERNAL AND CHILD HEALTH SPECIALISTS

Employment registers are to be established by the Civil Service Commission to fill maternal and child health specialist positions in the Children's Bureau of the Department of Labor. Vacancies in similar positions in States agencies cooperating with the Children's Bureau may also be filled from these registers at the request of the States concerned. The examination announcement just issued by the Civil Service Commission to recruit persons for these positions which pay from \$3,200 a year to \$5,600 a year allows the filing of applications until *November 15, 1941*.

There are three options in which persons may qualify, — pediatrics, obstetrics, and orthopedics. For each of these options employment lists will be established for administrative, research, and clinical positions. The duties of the administrative positions include giving consultations and advisory service to State and other Government agencies carrying out maternal and child health programs. The research positions involve the planning or directing of studies in such fields as infant and maternal mortality, and child growth in relation to social, economic and other factors. Persons appointed to clinical positions will do clinical work in one of the options.

A written test will not be given for these positions. Competitors will be rated on their education, experience and corroborative evidence. Applicants must have graduated from a medical school of recognized standing with an M. D. degree and must have served a 1-year internship. In addition they must have had full-time post-internship clinical training as well as other appropriate experience in the option selected and in the type of work in which they seek appointment.

The Commission would deeply appreciate your assistance in bringing this examination to the attention of Doctors who may be interested in Government employment. A copy of the examination announcement is enclosed for your in-

formation. Persons who wish to apply for this examination should be advised that further information and application forms may be obtained from the Commission's representative at any first- or second-class post office or from the central office in Washington, D. C. However, if you wish to furnish the Commission with the names and addresses of possible applicants, we shall be glad to send them announcements and application forms.

UNITED STATES CIVIL
SERVICE COMMISSION

OFFICE OF CIVILIAN DEFENSE

According to a joint statement issued on September 4 by the U. S. Director of the Office of Civilian Defense, F. H. LaGuardia, and the Chairman of the American National Red Cross, Norman H. Davis, State and local defense councils are the official agencies responsible for the coordination of all available resources which may be required for civilian protection in the event of belligerent action. Defense Councils should therefore acquaint themselves with the resources of the local Red Cross Chapters in providing food, clothing, shelter, nursing care, transportation, and other basic necessities and should integrate them into the comprehensive local program. Duplication of trained and experienced personnel and of available supplies of the Red Cross should be avoided except where supplementation is essential to meet the anticipated needs of the community.

NEW MEDICAL OFFICER EXAMINATION ANNOUNCED

Because of the critical need for Medical Officers in the Government, the Civil Service Commission has found it necessary to cancel the Medical Officer examination announced in August of 1940 and to issue another with certain modifications.

The principal changes in the new announce-

ment are: the adding of the option "Public health, general" to the Senior grade and the option "Cancer: (a) Research, (b) Diagnosis and Treatment" to the Medical Officer and Associate grade; the provision for the acceptance of applications for the Associate grade from persons who have not yet completed internship; the setting back of the date of graduation for the Associate grade to May 1, 1930; and the raising of the age limit for ALL grades to FIFTY-THREE.

Further information may be obtained from the Commission's representative at any first- or second-class post office or from the Central Office at Washington, D. C.

NURSING POSITIONS OPEN IN PANAMA CANAL

Nurses are needed for work in the Panama Canal. The Civil Service Commission has just announced a special examination to recruit nurses for these jobs. No written test will be given and applications will be accepted at the Commission's Washington office until further public notice.

The entrance salary for nurses in the Panama Canal service is \$168.75 a month with provision for promotions at stated intervals. A deduction of \$40.00 a month is made for subsistence and quarters which are available for single women only. An additional 5% deduction is made toward a retirement annuity.

Appointments will be made to general staff duty and to psychiatric work. To qualify for general duty, applicants must have completed a three-year course in a school of nursing, and be registered as a graduate nurse. For psychiatric duty, applicants must have completed a three-year course in a school of nursing in a psychiatric hospital and be registered as a graduate nurse. However, nurses who have had a three-year general nursing course and have had one year of experience on the nursing staff of a psychiatric hospital may also qualify for psychiatric duty. Applications will be accepted from persons in their final year of training in a nursing school although they must submit proof of the completion of the training course and registration as a graduate nurse before they enter on duty. Applicants must not have passed their thirty-fifth birthday.

Further information and application forms may be obtained from the Commission's representative at any first- or second-class post office or from the central office direct in Washington, D. C.

TICK FACTS

Rocky Mountain Spotted Fever was first recognized in Kentucky in 1934. Since then a total of 21 cases of this disease have been reported to the State Department of Health. Five of these resulted in death. This is a fatality rate of about 25 percent, which is a much higher rate than is encountered in most infectious diseases. The number of cases reported annually varied from 1 to 7 during the period 1934 through 1940. These cases were all reported from counties within a radius of 75 miles of Louisville, most of them east and south of Louisville.

Persons exposed to ticks, such as campers, fishermen, picnickers and children playing on uncleared land, should be carefully examined for ticks at least once a day, preferably at bedtime. It is, therefore, recommended that during this period persons who are particularly exposed remove all clothing at the end of each day and inspect closely all parts of the body, especially those parts covered with hair, such as the back of the neck and under the arms. Ticks must have fed for from 4 to 6 hours before there is much danger of acquiring the infection. Hence, prompt removal of the insect is one of the most practical and effective means of preventing infection with the Rocky Mountain Spotted Fever virus. In this connection, it should be pointed out that all persons to whom ticks become attached do not develop Rocky Mountain Spotted Fever. In the most highly infected areas of the United States it has been found that only about one in each 300 ticks harbors the Rocky Mountain Spotted Fever germ. The only danger in the possession of a dog lies in the fact that it may bring the insects into the home. Dogs should, therefore, be inspected from time to time and any ticks removed with forceps, cotton or a piece of paper, without crushing the tick.

After a person has been bitten by an infected tick, there is a lapse of from 4 to 12 days before the actual onset of the disease. This onset comes suddenly — often with a chill, a rapid rise in temperature and a severe headache. The patient should immediately go to bed and call a doctor. About 3 to 4 days after the beginning of the fever an eruption appears, which is flat, pinkish in color, small and distinct, usually first noticed around the ankles and wrists. It may later appear over the entire body — on the face, soles of the feet and palms of the hands.—F. W. Caudill, M.D., *Commonwealth of Kentucky, Bulletin of Department of Health, June 1941.*

The risk of contracting tuberculosis from extra-familial contact is greatest among school companions at the ages when resistance to the disease is lowest, namely, the "teen" ages; and among fellow workers, especially when the occupation is one which increases the risk of developing affections of the lungs. Report. Milbank Mem. Fund, 1928-40.

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

The medical profession as a whole has long been interested in preserving our American way of life. There seems to be some difference of opinion, at the present time, of just what one means by our American way of life. Our conception of this has been, and still is, that we must preserve free enterprise and that this so called free enterprise must be honest, it must be efficient and it must establish the greatest good for the greatest number of our people. It encircles all of our political, industrial, physical, educational, religious and social problems. It is obviously a large order.

The one hundred and thirty million people who constitute our population cannot be made to think alike, act alike, work alike, assume responsibility alike or have the same inherent qualities of honesty, ethics and self determination. We cannot legislate changes in hereditary or biological tendencies. The single family unit cannot be controlled as evidenced by the various frictions that develop in a single family unit. Our national unit is only a multiplication of the problems of the family unit except that the development of a social state brings added problems. As a social state multiplies and grows and attempts to develop into a social, political and economic unit necessarily new and various problems arise out of such developments.

The function of all people and all governments should be to give the people a fair and honest opportunity to help themselves. If we are not able to help ourselves as individuals of the national unit then it seems obvious that our government cannot legislate us into security. Free enterprise has not been perfect, however, it has wide accomplishments to its credit as evidenced by our rapid growth and progress in all of the branches of our society. Just as individ-

uals make mistakes in the conduct of their lives, their business or profession or whatever occupation they choose to pursue, so has free enterprise made such errors.

Government itself has been far from perfect.

Increased knowledge in the conduct of government and free enterprise should lead to the correction of such errors by thoughtful individuals. The question at the present seems to be whether we should recognize our errors and profit by them and set about to correct them and still maintain the principle of free enterprise or whether we should abandon to a large degree these principles and embark on a new program and new experiments, and assume that this new program and experiments will be more free from errors than our past record. Such experiments have been tried in various countries through various ages and the results are written on the pages of history both in the past and particularly at the present time.

The practice of medicine has operated for many years under the system of free enterprise, and its progress in this country cannot be questioned and its achievements are as free from error as any of our social, economic and political problems. The various government agencies have been of material aid in this progress and in these achievements. Regulatory laws are a necessity in medical practice just as they are essential in all of the other social and economic units of our state. Governments should always have regulatory controls but we should recognize that there is a wide difference between helpful and healthful regulations and regulations that are essentially confiscatory and destroy the democratic principle of free enterprise. We recognize the fact that in the intricate developments of our national unit, that progress coupled with

inventions and the development of our huge industrial machine, of necessity, bring new problems.

There has been a tendency in the past few years on the part of certain members of the medical profession and others to assume that there is an irresistible force in our country to change the general policy and principles of our American way of life. Many have felt that this force seemingly irresistible, that we should attempt to join with those who advocate changes and attempt to secure what we felt were the best changes possible under the new system.

The writer has sometimes acquiesced to this line of thinking but questions at the present time the soundness of such a philosophy for it seems evident that in our urgent desire to cooperate we are securing no further improvement than we would have perhaps secured otherwise.

It is difficult to reach a positive conclusion regarding this matter but it does seem that we at least should give serious consideration to the problem of making a valiant effort to fight for our conception of free enterprise and our conception of the American way of life.

The American Medical Association and its constituent societies are carrying on a valiant fight for the preservation of our present system of medical practice. In October 1939, the National Physicians Committee was organized to carry on a more extensive program not only for the preservation of our present system of medical practice but also for a continuation of free enterprise in general. The leading men of the medical profession have supported this organization, and it is the opinion of the writer that they are rendering a very valuable service not only to the medical profession but to the American people as a whole. I believe this organization should have the support of every individual physician in the state of Illinois because I think it is imperative that their work be continued.

Dr. R. K. Packard, Chairman
Committee on Medical Economics.

REPORT INFLAMMATORY ERUPTION OF SKIN FOLLOWING SULFATHIAZOLE TREATMENT

What they believe to be the first case of exfoliative dermatitis (a scaly inflammatory skin eruption) to follow sulfathiazole treatment is cited by Mary Weinstein, M.D., and Albert H. Domm, M.D., Philadelphia, in *The Journal of the American Medical Association* for August 23.

The patient was being treated for pneumonia when suddenly after eight hours of sulfathiazole treatment a profuse scaling rash with blisters developed. The drug was discontinued but the eruption became progressively worse until death five days later.

"Certainly," the authors warn, "the potential danger of sulfathiazole dermatitis [skin inflammation] should be kept in mind with the first appearance of cutaneous lesions. Withdrawal of the drug and forcing of fluids at the earliest sign of cutaneous manifestations constitute the safest procedures, although, as demonstrated in this case, the outcome may still be fatal."

TELEPHONE ETIQUETTE

As we respond to a 'phone call, the voice at the other end of the line is heard to say:

"This is Dr. X's secretary. Will you hold the line a minute. Dr. X wants to talk with you."

And then we wait a minute — or two minutes, — or possibly more.

This happens frequently to all of us. We doodle for a minute or two while busy Dr. X comes to the telephone after his secretary has made the contact. It would be more courteous if Dr. X had made the call himself, doodled for a little while waiting for us, and then greet us personally when we spoke into the receiver. It would have flattered us if he had assumed that we were as busy as he, or that our time was worth as much as his.

Relatively speaking, this is a small matter. How our telephone contacts are made will never change the course of history, but in a world in which courtesy is little thought of any more, it would be gracious to do the waiting on your end of the telephone line, rather than let a colleague's nerves become frayed while waiting for you at the other end of the line.— C. P. P. in *The Bulletin of The Columbus Academy of Medicine*.

Although a biological balance has apparently been turned against the tubercle bacillus, it is doubtful that the specific measures for its prevention have been in the main responsible. It is believed, however, that these specific measures can be made the dominant factor in the further decline of the death rate, and that if it be done intensively, the time when tuberculosis will cease to be an important medical and social problem can probably be reduced by one-half or more. Edward S. Godfrey, Jr., M.D., *Amer. Rev. of Tuberc.*, Jan., 1941.

If the fire departments were to refuse to fight fires started by cigarettes not made in the home county, they would be no more ridiculous than are we when we refuse to fight tuberculosis in a person who has not lived long enough in one spot to establish legal residence. T. J. Werle, *Health*, May-June, 1941.

Original Articles

THE MEDICAL DEPARTMENT OF OUR ARMY

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American Medical Association

INTRODUCTORY

In the not distant past the Medical Department of the Army was, like the whole Army, simply organized. The demands for speed, human efficiency and technical knowledge were not so great then as they are now, and a simpler organization sufficed for furnishing medical service to combat troops. But with the enormous changes occasioned in civilian life and in the fighting forces during the past half century, the Medical Department of our Army had to adjust itself to the demands of modern methods of existence and warfare. The end of the increasingly complex requirements for dealing with an enemy are not yet in sight. As the products of man's cerebration tend to change his mode of living, so do they change his conduct of warfare.

"Bigger and better" was a quasi slogan formerly much more in evidence than today. The urge was for bigger and better cities, bigger and better business, bigger and better farms, bigger and better hospitals; in short, everything had to be bigger and better. Just as the bigger and better concept affected all groups, so it affected military organization. Now we have armies, the detailed organization of which is so complex that only personnel free from mental and physical defects can understand and adjust itself to the coordinated requirements of the modern hard-hitting, rapidly moving mechanized force.

The selection of men free from mental and physical defects that preclude their service with the armed forces is a duty of the Medical Department. Once the men are selected for service,

it is the duty of the Medical Department to maintain them in "the pink of condition" so that the fighting strength of our Army will not suffer.

ORGANIZATION

In the organization of our Army, the Medical Department is classed as a service. It is not a combat branch, though it accompanies and functions with combat troops. Personnel from the Medical Department is assigned to all units larger than a company, troops or battery, so that each individual soldier will obtain medical aid irrespective of the geographical location of the unit or the time of the day.

The Medical Department is charged with maintaining the health of the Army. Just how this is accomplished requires considerable knowledge of organization and a comprehensive understanding of the functions of the different arms and services. The army consist of branches such as the Infantry, the Cavalry, the Artillery, the Engineer Corps and the Air Corps, while the services consist of the Quartermaster Corps, the Judge Advocate General's Department, the Adjutant General's Department, the Finance Department, the Ordnance Department, the Signal Corps, the Inspector General's department, the Chaplain's Corps and the Medical Department.

The activities of all branches of the Army are so coordinated by the general staff that the special technical functions of each branch are balanced into an harmoniously acting whole. The detailed organization of the Medical Department cannot be considered at this time. However, I shall attempt to give you sufficient details of the arrangement to convey to you some idea of the acceptable methods of dealing with the innumerable problems that confront the medical officers in accomplishing their duties.

The Medical Department of our Army is headed by the Surgeon General of the Army.

He has an office in the War Department at Washington, D. C. His office has the following divisions, all for the purpose of maintaining the health of our Army: the Administrative Division, the Dental Division, the Finance and Supply Division, Inspection, Library, Nursing, Personnel, Plans and Training, Preventive Medicine, Hospitals and Professional Services, the Veterinary Division and the Division of Vital Statistics.

In personnel the Medical Department consists of the Medical Corps, the Dental Corps, the Veterinary Corps, the Nursing Corps, the Medical Administrative Corps, the Sanitary Corps (in time of war only), the enlisted men of the Medical Department and civilian employees.

To furnish adequate medical service to troops in the field, special units are organized. These units vary, according to the duties which they may have to perform, from regimental medical detachments, with their battalion or squadron medical sections, to Medical Battalions, Medical Regiments, Surgical Hospitals, Evacuation Hospitals, Convalescent Hospitals, Hospital Trains, General Hospitals and Medical Supply Depots. Some of these units are mobile to accompany troops wherever they may go, while others are fixed installations which can be moved only with difficulty after they are fully established. The mobile units are attached to the combat units which operate in the combat zone, while the fixed units are farther in the rear in the communication zone or in the zone of the interior.

As has been already mentioned, the mission of the Medical Department is to conserve and maintain the fighting strength of our personnel. This would not be a difficult assignment if the personnel remained more or less fixed and in a more or less compact group; but with combat units scattered about the globe from the arctic region to the equator, from the Eastern limits of our hemisphere to the Orient — often remaining but a few days at any particular location — the administrative and technical difficulties of furnishing medical service to all men of the Armed Force soon present themselves. Cognizance must always be had of the effects of epidemic and endemic diseases, exposure to the elements, fatigue, nostalgia, proper clothing and feeding; also hospitalization, transportation, medical supplies and the keeping of records pertaining to the sick and the injured.

DUTIES OF ALL OFFICERS

All commissioned officers, irrespective of branch, are charged with certain responsibilities. The Infantry officer, the Artillery officer and the Medical officer are charged with the same general responsibilities as are the officers of the Quartermaster Corps, the Air Corps or any other branch of the Army. All take the same oath of office, namely, to defend the Constitution of the United States against all enemies, foreign and domestic, and all are charged by the President with certain specific duties such as maintaining discipline. Administrative duties involving the preparation of records and reports, equipping, sheltering, feeding, transporting, paying and training personnel are but a few of the responsibilities of all officers.

MEDICAL OFFICERS

In general, the special duties of Medical officers is that of contributing to a fulfillment of the mission of the Medical Department.

Since all personnel of the Army is serviced by the Medical Department, one will find Medical Department personnel on duty wherever there are soldiers. If the units to which the soldiers belong are mobile units, then the Medical personnel of that unit will move with the unit wherever it goes.

MEDICAL OFFICERS AND COMBAT UNITS

The medical service with different combat branches varies somewhat, depending on the mobility of the unit, its mode of transportation, the kind of weapons with which it is equipped and its functional purpose.

The smallest combat unit with attached medical personnel is the battalion of infantry or artillery and the squadron of cavalry. These medical sections, each with two medical officers, are, for matters of training, under control of the Regimental Surgeon, whose rank is that of Major. The aggregate of the regimental medical personnel is known as the Regimental Medical Detachment.

MOBILE MEDICAL UNITS

Mobile medical units are assigned to units larger than a regiment, such as a division, a corps or an army. A medical regiment is assigned to each Infantry Division and each Corps. Each Army has four medical regiments. To the Triangular Division is assigned a medical Battalion, to the Armored Division a somewhat differently organized Medical Battalion and to the

Cavalry Division is assigned a medical squadron. These mobile medical units move with the units to which they are attached just as does the Regimental Medical Detachment when its regiment moves. Medical regiments and medical battalions operate between the battalion aid stations and the clearing station or hospital station, from the front to a distance of from 5 to 7 miles to the rear. Their function is principally one of evacuation, shock treatment, treatment of gas casualties, additional treatment of the wounded that is not possible at the battalion aid station and the distribution of medical supplies to the units of the division.

Each Corps has one Medical Regiment that serves the Corps Troop and operates within the area occupied by Corps Troops.

The Army with its four medical regiments has the function of evacuating casualties from the clearing or hospital station of the division to its evacuation hospitals. In addition to the four medical regiments and the evacuation hospitals, each army has attached Surgical hospitals and convalescent hospitals, all mobile. General Headquarters has for evacuation purposes hospital trains, hospital ships and ambulance planes. The hospital trains operate from the evacuation hospital to the general hospital through the regulating station. The ambulance planes may evacuate directly from the divisional area to the zone of the interior.

FIXED MEDICAL INSTALLATION

General hospitals are fixed medical installations. Several general hospitals with or without a convalescent camp form a hospital center. A hospital center ordinarily consisting of three general hospitals and one convalescent camp has a normal capacity of 4,000 patients and a maximum capacity of 8,000.

In addition to the mobile and fixed medical units just mentioned there are mobile and fixed medical supply depots. Furthermore, the veterinary service has an evacuating system organized similar to that for the evacuation of human casualties.

MEDICAL OFFICER REQUIREMENTS

For each thousand persons in the Army there are allowed six and one-half medical officers, making a total of 32,000 for an army of 4,000,000. This includes all medical officers, those serving with combat troops as well as those serving in hospitals. We have now an army of about

1,400,000, and with it we have on duty 1,200 regular Medical Corps Officers, 1,100 medical officers belonging to the National Guard and 7,900 Medical officers of the Organized Reserves. About half of the Medical Reserve Corps are already on extended active duty. According to the Protective Mobilization Plan the professional specialist requirements are as follows:

Type	Number in PMP	Ratio per 1,000,000 men.
Allergist	118	98.3
Anesthetist	325	270.8
Anesthetist (intratracheal)	33	27.5
Cardiologist	250	208.3
Laboratory specialists	782	651.6
Clinical pathologists, broad training in all specialties	(239)	
Bacteriologists	(105)	
Biochemists	(168)	
Pathologists	(163)	
Serologists	(28)	
Epidemiologists and bacteriologist with general training	(26)	
Parasitologist	(9)	
Sanitary chemist and toxicologist (20)		
Medical entomologist	(5)	
Veterinary laboratory-specialist (17)		
Dental laboratory specialist)	(2)	
Dermatologist	118	98.3
Gastroenterologist	236	196.6
General operating surgeon	960	800
General operating surgeon, assistant	311	259.1
Internist	856	713.3
Neurologist	236	196.6
Neuropsychiatrist	231	192.5
Neurosurgeon	161	134.1
Ophthalmologist	121	100.8
Orthopedic surgeon	551	459.1
Otorhinolaryngologist	338	281.6
Plastic and maxillo-facial surgeons	164	136.0
Roentgenologist	418	348.3
Shock and intravenous therapy specialist ..	84	70.0
Thoracic surgeon	151	125.8
Tuberculosis specialist	118	98.3
Urologist and sphyliologist	352	293.3
Total number of specialists	6,914	5,761.6

These estimates are based on the units included in the Protective Mobilization Plan, 1940, Corps Area Service Command and War Department Overhead installations and includes those medical specialists specifically indicated in Tables of Organization (with the exception that the number of general hospitals used in this estimate was 102 instead of the 32 that is actually indicated in the PMP. In all cases, war strength is used. The number of hospitals included is based on the assumption that there will be battle casualties, and this estimate should not be used to cover the present training program. The total number of men under the PMP is 1,200,000.

During the present training period the Army has a normal bed capacity for 5 per cent of the command and an expansion capacity of 1 per cent. This makes available a total of six beds for every hundred men, or 84,000 beds for an army of 1,400,000. There are authorized sixty general hospitals of one thousand beds each,

thirty evacuation hospitals of seven hundred and fifty beds each and twenty-three surgical hospitals of eighty beds each. There are now organized forty-seven general hospitals, eighteen evacuation hospitals and seven surgical hospitals. In the theater of operations, beds are made available for 15 per cent casualties; these are in addition to the hospital beds in the zone of the interior.

As is well known, the Army conducts a sick call daily for all soldiers. It is at this time that soldiers should present themselves at the infirmary or hospital with their medical problems, real and imaginary. The medical officer examines each man, gives what treatment is indicated and marks the soldier "duty" or "hospital," depending on the findings. Many are marked "hospital" for trifling injuries or complaints because the status "quarters" is not conducive of good discipline. The soldier marked "quarters" is a responsibility of the Medical Department until he is marked "duty." The company commander cannot assign him duties and hence does not want him about the barracks. There is no status of "light duty" in the Army. This accounts for the admission to the hospital of many patients who would not ordinarily require hospital care and often irritates the highly trained, ambitious young physician who is restless to show his skill and accomplishments. To him I would say: "Be patient. Consider the purpose of the Medical Department, for its efficiency is not judged by the number of soldiers hospitalized but by the noneffective rate." At present the noneffective rate in our Army is lower than was expected. This commendatory state of health in our Army reflects the high quality of professional services furnished our troops.

TRAINING

Now that the training of our greatly enlarged Army is well advanced, the time has arrived for us to apply all of our knowledge and energy to further medical service to troops in the large training camps and to those in the field.

I shall deal with only three basic principles involved in furnishing medical service to troops: the mission of the medical department, the training of medical department personnel and the ultimate test of efficiency, combat.

Simple as the mission of the Medical Department appears, the preservation of the fighting strength of our soldiers is not always simple.

Indeed, the mission is often made complex because of a lack of appreciation of the means at our disposal for accomplishing our task. With a thorough knowledge of the tools available we should not become confused in doing our job, difficult as it may at times seem. Without training we cannot acquire knowledge or visualize our goal; nor can we apply the proper tool to a given situation for achievement of that most desirable of mass activities, teamwork. When all speak the same language and all understand one another, there will be little talk and much work.

Military knowledge consists of three elements: technical, tactical and administrative.

Technical Knowledge. About one third of a military medico's armamentarium is acquired prior to his entry into the Army. With a diploma from an accredited school, a certificate of internship from an accredited hospital and a license to practice medicine, the technical training should be almost complete. Nevertheless, environmental difficulties often necessitate substitute methods for the orthodox. As Dr. de Tarnowsky so aptly stated, a medical officer does what he can, when he can, with what tools he has at hand.

Although newly commissioned physicians are often reluctant to forego the pleasures of applying their professional skill, nevertheless it is imperative that they become versed in tactics and administration. Quite true, no physician desires to hang his hard earned professional ability in cold storage when he is assigned to duty with troops, and, indeed, it is not contemplated that he should permit his professional qualifications to go sour while actively engaged with the armed forces. However, he must know something about the different elements of the group with which he is to serve and live, for then, and then only, can he function effectively as professional aid and adviser. He must acquire the common knowledge of all Army officers and thereby fit himself for the higher responsibilities of leadership.

Tactics. — Tactical knowledge is acquired best by performing duty with troops. We have at Carlisle, Pa., the Medical Field Service School for instruction in administration and tactics, but not all officers are so fortunate as to be detailed to this school. Tactics deal with the organization and function of the different arms and services. It considers their size, their equipment,

their ability to move and their employment in combat.

Tactics of the Infantry are different from those of the Artillery or Cavalry, and so the tactics of the mobile medical units are different from the tactics of any other service. In the fixed medical units like general hospitals, tactical knowledge is not so important but the demands on administrative ability are greater.

Administration. — Administrative ability, also learned best on active duty, at service schools, is of great importance to officers in the higher grades. These officers when placed in command will find themselves responsible for many of the details involving shelter, food, clothing, equipment, supplies, properly accounting records and disciplinary control. As a knowledge of tactics is more important than administration in combat units, so administration is more important than tactics in fixed installations. Administration should be a subject of great interest to those officers who aspire to high rank.

COMBAT

Combat is the ultimate test of the strength and efficiency of our troops. Once engaged in combat it is too late to think of training or practicing tactical maneuvers. Combat is action of a most violent sort. It may change quickly from offensive to defensive, from holding to moving, from orderliness to almost helpless confusion. In World War I combat stagnated into trench warfare; but the present European war with its rapidly moving panzer divisions, dive bombers and heavy tanks has demonstrated to us a form of combat depending on the "break through" and the immediate and uninterrupted follow-up with thorough exploitation of every advantage gained. Once a major attack is launched there is no stopping until the objective has been reached. When teamwork is perfect, victory will be ours.

TOTAL WARFARE

Modern war is total war. This means not alone that the armed forces engage the enemy but that the entire population must contribute to the effort. Furthermore, civilian populations are as exposed to the destruction wrought by far flung explosives as are the combat troops. Needless to say, total war makes extraordinary demands on the medical profession. Not only must the profession supply the troops with adequate medical service, but it must assume additional

responsibilities in maintaining the health of the civilian population; hence there has been organized a Committee on Medical Preparedness.

PREVENTIVE MEDICINE

One of the requirements of all medical officers is a thorough knowledge of preventive medicine. It is not enough to know the dangers of communicable diseases to a community and the advantages of isolation of patients afflicted with these diseases; it is essential to know how they are transmitted, the vector involved, the reservoir, seasonal variation and the immunological factors. Furthermore, it is essential to know the needs of the soldier to maintain his effectiveness. Here the medical officer must always be on the alert to detect improper feeding, unnecessary exposure and improper protection against the elements. The personal hygiene of the individual soldier and his environmental sanitation are the responsibilities of the medical officer at all times. He must report sanitary hazards to his superior immediately, frequently appending his recommendations for correction of the defects. Although line officers are frequently excellent sanitarians, their duties are too involved to permit delving in the details of preventive medicine. When, however, the medical officer makes recommendations for the correction of sanitary defects, immediate action will be taken by the commanding officer.

Soldiers are of an age group with low morbidity and mortality rate. To determine their freedom from disease and disability, they are given a thorough physical examination before they are accepted for service. Immediately after being sworn in they are vaccinated against smallpox, inoculated against typhoid fever, immunized against tetanus and, depending on geographical service, protected against yellow fever and other diseases against which protection is possible.

Kitchens, mess halls, quarters and latrines should be inspected daily. Food handlers must be examined periodically to determine freedom from transmissible diseases and parasites. Barbers are also examined periodically, and their shops must be operated in accordance with Army Regulations.

To prevent introduction of communicable diseases and parasites and to check on the personal hygiene of soldiers, thorough physical inspections are made monthly. At these inspec-

tions note is made of the cleanliness of clothing (outer and under); evidence of disease, infection, injury, proper nourishment, venereal diseases, foot troubles and ill fitting or unserviceable shoes.

In the absence of a veterinarian, it often becomes the duty of the medical officer to inspect meat and meat products. Here the medical officer must again show his versatility, for the eating of spoiled beef, pork, fish, fowl or other foods will quickly deplete an organization of effectiveness.

Just as spoiled food is a danger to good health, so are impure air, polluted water and a dirty environment. Constant supervision must be exercised to have regulations pertaining to ventilation enforced, and in the field daily checks must be made on drinking water.

Soldiers travel about the countryside in a wide circle when on pass. They eat wherever they happen to be when they are hungry, and alcoholic drinks often so affect their inhibitions that they become easy prey to the painted "ladies."

Preventable diseases are never tolerated in our Army. We find them, of course, but it is the duty of the medical officer to be constantly on the alert concerning their presence and to be sufficiently active to make immediate and correct recommendations for their control.

MEDICAL PREPAREDNESS

Medical preparedness is but a part of a vast general preparedness program of the whole nation, albeit an extremely important part of that larger program. In considering the effectiveness of our medical preparedness for a major emergency, we must consider in detail not only the number of physicians of the nation and their distribution but their ages, their specialties, their physical condition and, perhaps, their administrative qualifications.

By the application of increasingly higher self-imposed standards of preparation and practice, circumscribed chiefly by the limits of science and fair dealings, the medical profession has endeavored and continues to hold itself prepared to cope with the health problems of the nation. Because the medical profession possesses the knowledge and the ability to attend to our health problems, it is but good common sense to hang

the responsibilities of a nation's health squarely on the shoulders of the profession. Should the profession show reluctance at assuming their responsibility, or even procrastinate, then there is grave danger of medicine falling from its laboriously reached scientific heights and tumbling back into the dismal pit of empiricism, charlatanry, quackery or worse.

There are about 180,000 physicians in our country at the present time. Not all the 180,000 are actively engaged in practice. In the total, male, female, old, young, desirable and undesirable are included. With a normal annual attrition of about 4,500 and a graduation of about 5,200 for replacement and service for the 800,000 to 900,000 annual increments in our population, no surplus of physicians is being produced.

The Medical Preparedness Program involves:

1. A knowledge of the number, nature, location and availability of present medical services and facilities.
2. A knowledge of the maintenance of the standards of quality of services regardless of the individuals or groups to whom it is furnished.
3. Facilities for the conduct of research.
4. Arrangements for the maintenance of teaching institutions.
5. A comprehensive knowledge of the health and medical requirements of the civilian population.
6. An understanding of the health and medical requirements of the armed forces.
7. A definite understanding of the requirements necessary to maintain a qualified medical profession to provide medical care for the armed forces and the civil population.

As our national defense progresses, additional demands not thought of will be made on the profession. We already have the demands of the Selective Service and the proposals of our National Youth Administration, our Control of Syphilis program, the Office of Civilian Defense and rehabilitation. But with proper planning and a continuing supply of graduates from our institutions of learning, I feel certain that the medical profession of our country will again, as on many previous occasions, win the everlasting praise and respect of our fellow citizens.

COMMON SENSE IN THE PRACTICE OF MEDICINE

Chairman's Address

Section on Medicine, One Hundred-First Annual
Meeting, Illinois State Medical Society,
Chicago, Illinois, May 21, 1941.

WILLARD O. THOMPSON, M.D.

CHICAGO

In all fields of human endeavor the most important thing is good judgment — a rather rare quality. A man may have an entertaining personality and a constant flow of new ideas and yet be very erratic, unpredictable and undesirable because of lack of common sense. Good judgment depends upon inherited and environmental factors. Important among the inherited factors are the quality of the cerebral cortex and the stability of the nervous system as a whole: and among the environmental factors, good training and hard work. Experience must be constantly broadened by the frequent facing and solution of new problems.

Advances in medicine are taking place so rapidly that it becomes very important to know when a new idea is worth anything. It is only 17 years since I graduated in medicine and yet so great has been the change that were I to attempt to practice medicine knowing only what I was taught at that time, I should be hopelessly out of date. During my days as a medical student the use of insulin in diabetes and of iodine in toxic goiter were first announced. Since then have come advances in every branch of medicine and particularly in the field of vitamin deficiencies including the chemistry and synthesis of various vitamins, in our knowledge of the endocrine glands and in the extraction, identification and synthesis of the hormones which they produce, and more recently, in the development of chemical agents effective in a variety of infections. With this increase in our knowledge has come the necessity for carrying out numerous laboratory procedures for purposes of diagnosis and for following the course of treatment and yet not a single one of them is any substitute for good clinical judgment. So many ideas are put forth and so many procedures advocated that later prove to be of no value, that it is well to preserve an attitude of wholesome skepticism toward everything. This does not mean that one

should question only the new but that he should question both the old and the new. It used to be that things were so because Galen said that they were so: but this point of view has long since disappeared and most of us, I hope, now think a little for ourselves.

As a medical student I was taught that diets low in protein and salt were valuable in the treatment of essential hypertension and chronic nephritis. In recent years data have been presented which suggest that inadequate amounts of protein in the diet actually disturb the nutrition of the kidney and one would indeed be very outmoded if he were to prescribe a low protein diet at the present time for a patient with essential hypertension. Within the past few years two procedures have gained some acceptance that to the man with common sense would seem open to question. Goldblatt showed that as a result of ischemia a substance was produced in the kidney which raised the blood pressure. This was a very important observation but a variety of investigators began going too far in their clinical application of this finding. A search was made for a damaged kidney in patients with essential hypertension and in occasional instances patients were cured by the removal of such a kidney: but as time has gone on and evidence has accumulated, it has become increasingly apparent that only rarely can damage to a kidney be demonstrated in patients with this disease. Sympathectomies have also been somewhat in vogue in certain quarters for the treatment of essential hypertension. If the patient is not cured the surgeon wonders if the sympathectomy has been extensive enough. To be sure, we have learned a great deal about the physiology of the sympathetic nervous system but I rather suspect that the results are such that if you and I had essential hypertension we should like to keep our sympathetic nervous systems intact.

Speaking about diets reminds me of the diagnosis frequently made of spastic colitis or irritable colon. I was rather appalled when one of my friends in another hospital informed me that owing to the unfortunate dietary habits associated with civilization, 95 per cent of the population suffered from irritability of the colon, which could be cured by a bland diet. I had been under the impression that the symptom complex covered by this diagnosis was attributable in most instances to a disturbance of the

sympathetic nervous system. In this connection, I shall always remember the man about 45 years old who sat down in a doctor's office one Saturday afternoon and began relating in great detail his history which seemed to concern primarily his gastro-intestinal tract. A diagnosis of irritable colon had been made elsewhere and over a period of several years his diet had been more and more restricted. He had lost about 50 pounds in weight. When he was asked "How do you feel now?", he answered in a very serious voice, as if he were about to die, "I feel terrible." When asked if he were hungry, he said "Doctor, I get so hungry at times I don't know what to do." After a careful study of the patient from every point of view failed to reveal any organic disease, he was given a high caloric diet which contained a liberal amount of fresh fruit and green vegetables. He thrived on this regimen but periodically, for a period of from 1 to 4 days, would have some abdominal distress, nausea and vomiting, with or without headache. These attacks would come and go regardless of the type of food he ate before or during the attack. A diagnosis of intestinal migraine was made. Dietary restriction was not necessary.

With the increase in our laboratory facilities there is a tendency for some physicians to order many laboratory tests which they are not qualified to interpret. To interpret a laboratory result intelligently it is necessary to have some acquaintance with the procedure involved and particularly with the errors inherent in it. One afternoon a nose and throat man called an internist to say that some blood was being sent out to his laboratory for analysis. The doctor consulted wanted to know what the trouble was and was informed that the patient had otosclerosis. He then wanted to know what laboratory tests were particularly desired and was informed by the nose and throat man that the latter did not know but was groping around for something. All he wanted was a blood chemistry and an internist would surely know what to do better than he did. Unless one knows how to interpret laboratory results it is better not to rely on them and furthermore one should bear in mind that the value of the result depends on the accuracy with which it is obtained. It is only after much bitter experience that we learn to discard all questionable results. It has been very aptly said "God forbid that we should practice medicine by

machines alone."

There never has and never will be any substitute for a careful history and physical examination. We must be doctors first and specialists afterward if we would avoid overlooking many important facts. When a very nervous woman recently consulted me about a goiter, I should have been a very poor doctor indeed if I had not noticed that she appeared to be very much disturbed about something although her pulse rate was normal. She was loathe to talk at first but a little questioning brought out the fact that her nervousness dated from the time that her husband, of whom she was very fond, had told her that he was very handsome, could get any woman he wanted and would like a divorce. Her basal metabolism was normal. To be sure, she had an adenomatous goiter but it was not the cause of her trouble.

Foci of infection were very much in vogue when I was studying medicine, although I must say in support of my instructors that they showed unusual conservatism about the matter for the times in which they were living. Teeth, tonsils and gall bladders disappeared like snow before the sun. Even the colon came in for its share of surgical attention. As time went on, it became more and more apparent that only in occasional instances did foci of infection bear a causative relationship to disease. Women still had their arthritis after all possible foci of infection had been removed: and chorea and rheumatic fever were found to be just as frequent in children who had tonsillectomies as in those who did not. Yet the notion still persists that whenever there is any doubt about the cause of any disorder, it is good practice to remove the tonsils and any devitalized teeth in any event. A woman with acromegaly whom I saw recently had her tonsils out twice within four years because of a little spur on her left os calcis. The pain in her heel and the great capacity of the lymphoid tissue in her tonsils to regenerate were both undoubtedly related to overproduction of growth factor by the anterior lobe of her pituitary. Some years ago a man with retrobulbar neuritis had his tonsils and adenoids and some devitalized teeth removed, only to discover in later years that his retrobulbar neuritis was part of the symptom complex of multiple sclerosis, the progress of which certainly was not affected by the removal of his supposed foci of infection.

There is fortunately developing a spirit of closer cooperation between the physician and the surgeon and the realization that except in emergencies, the operative procedure itself is only an incident in the treatment of the patient. Taking it for granted that the surgical skill is of high quality, the most important thing in determining the outcome of operations is the preoperative preparation of the patient. The postoperative care is also of importance but not as much as the preoperative condition. The great importance of adequate preoperative preparation is well shown in the reduction in mortality in surgery of the thyroid and gall bladder. Indeed a thyroidectomy is never an emergency procedure and a crisis in the postoperative period almost always means inadequate preoperative preparation. The first question that should be constantly asked whenever the problem of surgical intervention presents itself in any diseased state is not "*How should this operation be done?*" but "*Should it be done at all, and if so, when?*" Surgical procedures should be resorted to only when it is clear that carrying them out will improve the condition of the patient or that they offer the only hope that the patient has of surviving. A decision to operate should be made only after the most careful study of the patient. The danger of jumping at conclusions is very well illustrated by the case of the busy surgeon who decided to do an appendectomy because a patient had some tenderness over McBurney's point and some nausea and vomiting. The patient's wife was greatly impressed by the fact that he could, by merely looking at the patient, decide what the difficulty was and do something about it at once. The surgeon, on the other hand, was not sufficiently impressed by the fact that the patient had a temperature of 104° F. and a leukopenia. Unfortunately, at the time of operation, he did not realize the significance of congestion and enlargement of the lymph follicles in the terminal ileum. The patient did not tolerate the operation very well but managed to survive. Two weeks afterward his temperature was still 104° F., he still had a leukopenia and it was apparent to both the surgeon and the patient's wife that all was not well. The physician who had looked after the patient for some years was finally consulted and made a diagnosis of typhoid fever, which was confirmed by various laboratory procedures. The patient survived after a very

stormy course which was complicated by rupture of his appendix incision about 3 weeks after he had been operated on. This resulted in a ventral hernia which had to be repaired at a later date. This patient is of course, not the first one with typhoid fever to be operated on for appendicitis and there is, indeed, some justification at times for having difficulty in distinguishing between the two diseases. In this instance it would seem that if more time had been taken to make a careful study, needless surgery would have been avoided and perhaps the course of the disease would have been less severe. There are times when it is necessary to make decisions quickly but in most instances decisions made in haste are apt to be repented at leisure.

Rest is probably one of the most important therapeutic agents and yet it is greatly overdone in some clinics. For example, in preparing a patient with toxic goiter for operation, it is very unwise to keep the patient confined completely to bed unless he is decompensated or in a crisis. Complete bed rest produces loss of muscle tone and loss of muscle tone increases the risk of operation. Rest has also been greatly overdone in the treatment of certain cardiac disorders. In many instances in which complete rest has been the order of the day, it is coming to be realized that the heart muscle does better if it is made to do some additional work, never forcing it, of course, to the limit of its capacity.

There is an old idea that when you do not know what to do, you must do something. Nothing could be further from the truth. When you do not know what to do, do nothing rather than do something for the mere sake of activity. Let me illustrate this by the difficulties of a certain inexperienced intern who had the care of a woman following a thyroidectomy for exophthalmic goiter. The patient was in unusually good condition at the time of operation. Her basal metabolism and pulse rate had dropped to within normal limits. She had gained weight. When her pulse rate rose to 120 following operation, he did not know that this was a common occurrence and proceeded to digitalize her. Digitalis was continued until she developed a complete heart block. Although she was not vomiting, he thought he should administer some fluid parenterally on general principles. The patient unfortunately had some reaction from the fluid which caused her temperature to rise to 105° F.

As a result of this intern's desire to do something without waiting to study the situation thoroughly and to procure the knowledge in which he was lacking, a postoperative course that might have been uneventful, became a very unpleasant one.

Hormones and vitamins seem to be very popular nowadays. The average person who eats a well balanced diet and gets his share of sunshine does not need to worry much about vitamin deficiencies. However, one would not think this to be the case from reading the advertisements. To prescribe glandular products intelligently requires a very precise knowledge of the glands of internal secretion. The advances in this field have been so great that it is difficult for the average physician to keep informed even about what the various glandular products are, let alone what they will do. Consequently, we witness a great deal of useless polyglandular therapy, undertaken in the blind hope that one of the elements may hit the mark. Recently, while discussing the treatment of hypogonadism, a physician was extolling the virtues of testosterone propionate. When he had finished, the doctor to whom he was talking said "Say, doc, what about this stuff 'test-aw'-sterone?" Is that any good?"

Many very potent products are now available with which we can literally produce modern miracles. For example, we can produce sexual maturity in men and women who are completely undeveloped sexually. We can restore patients with Addison's disease to good health and keep them alive. Nothing is more remarkable than to observe the development of the flat breasts of the sexually immature woman in her twenties, to watch her infantile uterus assume the proportions of the normal adult uterus, to note the increase in weight and the deposition of fat in the characteristic feminine areas and to see childish emotional reactions replaced by those of the normal adult. This becomes all the more intriguing when we realize that these changes can be produced by a substance prepared synthetically in a chemical laboratory. But in spite of the many excellent products that are now available, there are also many of questionable value that are still being rather extensively used. For example, there is not a single anterior pituitary preparation on the market at the present time that is very effective in routine clinical practice.

With the great advances that are being made in medicine, it is necessary to preserve an open mind and to change our ideas frequently, but we must never be carried away by overenthusiasm or accept things without adequate evidence. When we do not know, we should say so and enlist the aid of people who do. With increasing knowledge and experience one will, if he is stable, acquire good judgment and will be able to tell when a procedure appears to offer some promise and when it does not. A good physician considers only the welfare of his patient and will subject him only to those therapeutic and operative procedures which will help him.

SURGERY OF THE AGED

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Bailey has aptly stated that "within the past twenty-five years, pediatrics has been elevated from a more or less interesting fad to a highly developed and economically important specialty." Thewlis says, "the aged gradually grow economically worthless and must remain so, while the child has a prospective and ever increasing economic value." Pediatrics has merited the efforts of its pioneer advocates and the praise it receives as a potential saviour of future races.

In sad contrast is the lack of progress in the development and improved care and understanding of the problems of the aged. Some advances have been made and can be noted when the life expectancy tables of today are compared with those of ninety years ago. In 1850 the life expectancy in this country was thirty-nine years; in 1931 it was fifty-nine years. Brooks stated that in 1850, 600,000 persons or 2.6 per cent of the people of the United States were more than 65 years of age. In 1900, 3,080,000 or 4.1 per cent, and in 1941, 9,000,000 or 6.8 per cent were more than 65 years of age. If the present trends continue, 22,000,000 persons or more than 14 per cent of the population will exceed 65 years of age by 1970. It is obvious that with the increase of individuals past 65 years of age the incidence of surgical lesions likewise will have increased. As lesions which should and must be treated surg-

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ically develop in many individuals 65 years and over, attention is drawn to the value of careful analysis of the effects of surgical lesions and the risks of operation in patients in these age groups.

My interest in this subject dates from boyhood. My paternal grandfather, 70 years of age, had been denied surgery for an incarcerated inguinal hernia notwithstanding his otherwise excellent health. At 72, however, he was operated on successfully for this lesion and lived to carry on an active life until he was 79 years of age. The common axiom, "he is too old for operation" on many occasions is an excuse for avoiding surgery, yet people have lived sixty-five years and over because there was nothing radically wrong with kidneys, heart, lungs and liver. A dissipated ne'er-do-well of thirty-five years is a much greater surgical risk than the well preserved patriarch of eighty. Surgery of the middle age furthermore is differentiated from that of advanced age and yet the chronological age of the patient is accepted as an excuse to delay or withhold operative treatment to relieve dangerous or disabling diseases, a large percentage of which are amenable to safe interference.

A shift in population will affect medical economics. By necessity there will be an increase in the number of physicians and institutions. Furthermore, a redistribution of physicians will be necessary when more of our elderly patients settle in the South. At the present time the chance of dying of cancer is one in nine for white males and one in seven for white females. It is believed, furthermore, that the number of patients with cancer may nearly double within the next twenty-five years because of the shift of population structure.

The Committee on Population Problems in 1930 reported 12,000,000 children under five years of age and 6,500,000 adults past 65. By consulting Table I, it is readily seen that by 1970 there will be approximately 22,000,000 adults over sixty-five and, because the birth rate since 1900 has dropped more than one-third, there will be 6,500,000 children under five years of age. It seems obvious, therefore, that geriatrics should approach pediatrics in its importance.

The visit to older patients should never be hurried; rather it should be casual as though he were being honored. It also should be one of pleasure and since old people live on memories,

it is well to discuss events of common interest rather than to discuss the condition at hand. Many times an optimistic note, for instance an evening at dinner in their home, will give them something to anticipate.

Upon admission to the hospital the personnel should be instructed to alter the patient's usual routine as little as possible. With any sign of pessimism as to prognosis shown by the personnel the morale of these patients immediately drops. By explaining their problems to them as accurately as is advisable their outlook immediately becomes optimistic. Another important point is that the surgeon in charge should explain to these patients the results of the pre-operative examinations and what is to be done at operation. As these people by virtue of their age have become accustomed to suggesting to other persons what should be done, it flatters them to know that things are being done for them.

TABLE I
TABLE (DUBLIN AND LOTKA) AGE COMPOSITION
OF THE POPULATION OBSERVED FOR 1850, 1900
AND 1930; AND CALCULATED FOR 1950 AND 1970

Year	Total Population (Millions)	Under 20 yrs. (Millions)	Ages 20-49 yrs. (Millions)	Ages 50-64 yrs. (Millions)	Ages 65 and over (Millions)
1850	23.2	12.1	8.9	1.4	0.6
1900	76.0	33.7	32.0	7.1	3.1
1930	122.8	47.6	54.0	14.4	6.6
1950	138.3	40.1	63.2	22.4	12.5
1970	151.4	40.6	59.8	28.6	22.4

N.B.: Average age of U. S. population —
In 1940 — 28.9 years
In 1900 — 22.9 years

When surgery is necessary in the aged prolonged bed rest and sudden change of environment by an abrupt curtailment of previous habits should be avoided. Probably because of the feeling that most of his life lies behind him, the older patient has fewer worries than the active business man of younger years and accepts operation with more tranquility and resignation when in the proper frame of mind.

The criteria for surgery in these aged people is as follows:

1. Is surgery essential to save the patient's life?
2. Will operation remove the physical disability and rehabilitate the patient to his more or less normal status?
3. Will it affect a cure of a malignant disease? These matters should be weighed carefully in view of the physical status of the patients under consideration.

In a general survey the following factors should be considered. First, an estimate should be made of the cardiac reserve. LeRoy states it must be assumed that a patient past 65 has at least a Grade II heart disease. Any patient, therefore, who is to have surgery should have a careful cardiac study including electrocardiographic tracings and roentgenological studies of the chest. More information may be gathered from a careful clinical study than from all the laboratory procedures now available. A good rule of thumb for such patients is whether or not they can walk with ease around the block.

In choosing cardiovascular patients for surgery Willius' criteria are (1) the degree and extent of cardiovascular damage, (2) the degree of cardiac restoration possible by treatment, and (3) the prognosis with regard to life expectancy.

Many of these patients have chronic bronchitis and bronchiectasis which mitigate against surgical procedures. These should be estimated as accurately as possible in view of the type of anesthetic to be employed and the extent of the operation necessary to effect a cure. More will be said on this point under "Anesthesia."

The wear and tear of years has produced a certain amount of liver damage in these patients. This need not be a deterrent to operation if proper pre-operative studies are carried out. Complications following cholecystitis in the aged are very poorly tolerated, and postponing surgery because of age alone is to be condemned.

The genito-urinary system should be carefully analyzed. Many of these patients have a low grade prostatic obstruction which will become an immediate postoperative problem, and it is well to anticipate this before surgery. Many times a long standing nephritis which is subclinical will be revealed in the pre-operative studies and measures may be directed to the correction of this condition before subjecting the patient to operation.

These patients should have a routine blood chemistry examination including studies of the urea nitrogen, non-protein nitrogen, chlorides, carbon dioxide combining power, and plasma protein determination. This information often will elicit a silent nephritis, liver damage or low kidney reserve which has been present for a number of months or years. The plasma protein often is low in patients of this age group because of their altered eating habits due to changes in

dentures. The protein intake consequently is usually low. These complications determined beforehand should be corrected and the blood chemistry placed in as nearly normal balance as is possible by intravenous fluids, blood transfusions, vitamin therapy and adequate diet.

Pre-operative medication should be minimal and opiates are better used sparingly. We do not give large doses of opiates to elderly patients because they act as depressants to the vital organs.

An anesthetic should be chosen which will have the least deleterious effect on the patient but which at the same time will be adequate for the anticipated operation. Frequently the method of choice involves a combination of two or more agents, any one of which used alone would be inadequate. The patient will cooperate poorly when given an anesthetic that he fears, and for this reason the anesthetic to be used should be discussed with the patient. For this group of patients we prefer to use regional block supplemented by inhalation gas anesthesia, because it affords less damage to the already altered physiology and with the cooperation of the patient gives adequate relaxation. If the patient's hemoglobin is less than 50 per cent spinal anesthesia should not be used.

Because old people react adversely to long-continued annoyances it is better to avoid multiple stage operations. Patients subjected to colostomy many times gradually will decline because of the chronic nuisance they have to endure. A woman of 71 years, for instance, with a carcinoma of the splenic flexure had a one stage resection with an ileostomy of the Witzel type. She was out of bed on the fourth postoperative day and left the hospital on the eighteenth day.

At the time of surgery older patients shock more subtly and are much more difficult to treat therefore, whereas young people shock quickly but respond to shock therapy more promptly. Measures should be taken to prevent shock, therefore, by administering intravenous fluids, blood transfusions and other methods. We have found that suprarenal cortical extract given to elderly patients before and after operation will aid in preventing shock as well as to buffer the strain on the vital organs by freeing the fluids in the tissues. This helps in keeping the blood electrolytes in balance.

Often transfusions are given to aged patients

who are not actually in need of blood to prevent possible shock. The blood should be given slowly.

An operative procedure should be chosen which renders the most likelihood of success from the point of view of cure as well as morbidity. The basic principles in surgery of this group are *timely, cautious, humane surgery*.

Immediately postoperative the patient should be given oxygen for ten minutes and should have hyperventilation with a carbon dioxide-oxygen mixture every hour for the first twenty-four hours. The cardiac output is increased thereby and the heart muscle is spared as much as possible. This is also a prophylactic treatment for pulmonary complications which these patients are most prone to develop. At no time is pitressin given because it produces coronary spasm (Le-Roy).

Fluids should be used most judiciously. Murphy and his co-workers have said that regardless of the state of compensation in a diseased heart fluids must be given slowly, in small volume, and preferably in the form of isotonic solution. For this reason immediate fluid intake is not of primary concern and it is probably well that these patients undergo a certain amount of dehydration since old people tolerate starvation and dehydration well. The danger of excess fluid far outweighs that of inadequacy for a period of two or three days postoperative. Many times pneumonia is brought about by the injudicious use of intravenous fluids. Fluids given rapidly to a patient whom we must assume has Grade II heart disease may lead to the development of moisture in the lungs and subsequent pneumonia.

Postoperatively, these patients are somewhat of a problem as to just how much they should be allowed to move about, to have visitors and to become adjusted to their preoperative status. If possible, as soon as the danger of secondary shock is past, these patients should be encouraged to move about freely in bed, sit up in bed, and be up in a chair on the second, third or fourth day. A Balkan frame and a trapeze attached over the bed allows more freedom of use and motion of the extremities. It is, furthermore, prophylactic treatment for pulmonary complications.

Members of the family should call upon the aged patient at an early hour postoperatively. The danger of excitement is minimal and is offset by a definite feeling of optimism created in

TABLE II.
INCIDENCE OF SURGERY

Hospital	Year	Total Major Operations	Patients over 65	Per cent of Total	No. died postoperative	Mortality per cent
St. Lukes'	1940	2221	97	4.36	18	18.3
Univ. of Chicago	1939	2012	162	8.05	21	12.9
Billings	1940	1975	155	7.85	20	12.9
Univ. of Michigan to Hospital	1935 to 1940	16624	2415*	14.52	479	19.83
Ann Arbor						

*These statistics are for patients of 60 and over.

the patient.

An analysis of the mortality rate in aged surgical patients is shown in Table II. It can be seen that approximately ten per cent of all patients submitted to surgery are in this age group. The table does not include figures on transurethral prostatectomy and closed reduction of fractures.

SUMMARY

Because of the shifting population, creating more aged people in this country, a different attitude is being forced upon us in regard to surgery of the aged.

A charitable attitude is one of choice. Because the variation in the type of lesion from clinical and laboratory surveys may lead to a bad prognosis and denial of surgery in the aged, we feel it is best to offer these patients something constructive in the form of surgery.

We believe that a judicious choice will lessen the hazard of operation in this age group. The chronological age must never be a criterion as to the prospect of surviving the surgical procedure.

The factors which account for better surgical results in the aged group are a better understanding of physiology and physiological chemistry, the proper choice of anesthesia, and development of surgical technic. I should like to stress again the basic principles of timely, cautious, humane surgery.

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OPHTHALMOLOGY UNDER FIELD CONDITIONS

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(The opinions expressed in this paper represent the views of the author, and are not to be construed as representing those of the Surgeon-General or the Medical Department of the Army).

The mission of the ophthalmological service of a field force is the preservation and care of the eyes of the personnel composing the forces in the field. The Chief Surgeon of a field force numbers among his consultants an ophthalmologist. Although a formal ophthalmological service is provided for in higher commands only, all lower medical units provide primary first aid treatment to eye injuries. The ophthalmologist does his part in carrying out the general mission of the medical department, which consists of contributing to the success of military operations, by the application of technical knowledge to conserve man-power and to prevent adverse effects upon combat efficiency. To be more specific, the responsibilities consist of first, the recommendation of measures to protect

troops from eye injuries and disease, second, recommendations as to procedure in the care of eye injuries, third, supervision of eye hygiene in collaboration with other medical officers, fourth, the procurement of ophthalmological equipment and supplies, fifth, the keeping of proper records for future use, and sixth, making recommendations for the training of medical department personnel in the care of eye injuries.

In a modern army the visual requirements are strict; the visual hazards greater than in former years. The man who drives the tank or truck must see well. He is required to have 20/100ths vision without glasses, correctible to 20/40 in each eye, although waivers may be granted some. In addition to below minimum visual acuity there are many other causes for rejection. Trachoma, chronic conjunctivitis, keratitis, corneal ulcers, corneal cicatrices and opacities, and staphyloma if sufficient to reduce vision below the standard; xerophthalmia, extensive pterygium, ectropion, entropion, lagophthalmus, ptosis, trichiasis, blepharospasm, chronic blepharitis, epiphora, chronic dacryocystitis, or lachrymal fistula are all causes for rejection. To these may be added irregularities in the form of the iris, synechiae sufficient to reduce visual acuity below the standard, progressive cataract, coloboma of the choroid or iris, absence of the pigment layer, glaucoma, iritis, extensive or progressive choroiditis, retinitis, detachment of the retina, neuroretinitis, optic neuritis, or atrophy of the optic nerve. Additional causes for rejection are nystagmus, exophthalmus, well marked strabismus, nyctalopia, diplopia, asthenopia accompanying any ocular defect, malignant tumors of the lids or eyeballs, or abnormal conditions of the eyes due to diseases of the brain.

An ophthalmological estimate of the situation must be made in an area occupied by an army. The prevalence of trachoma or other infectious diseases must be ascertained and preventive measures instituted. In dusty areas, routine measures for the prevention and treatment of dust conjunctivitis must be instituted. The care and operation of motor vehicles constitute an eye hazard to those so employed. Men must be taught how to guard their eyes when working about motors and other machinery. The use of protective goggles when working in machine shops should be insisted upon.

Treatment of eye injuries whether due to motor accidents, working with tools, or when due to war projectiles are handled as follows: — First aid to the injured eye is given on the spot by the soldier himself, or the nearest available medical department man. This usually consists of bandaging, utilizing the bandages that every soldier carries in his first aid packet. The first medical officer to see the patient will examine the eye, make a diagnosis, elaborate on the first aid treatment, and evacuate the patient to a clearing station. From the clearing station he will be removed to an evacuation hospital, and from there to a convalescent hospital or a general hospital, each of which has an ophthalmologist.

Both the chief surgeon of a field force, and the chief surgeon of a communications zone are aided by a staff called the consultant section. The consultant section has in its surgical subsection an ophthalmologist. Corps, divisions, and smaller units do not have an ophthalmologist in their tables of organization. The activities of the ophthalmologist are coordinated with those of other consultants in the medical section of the Army Surgeon's headquarters.

Eye patients requiring hospitalization are given temporary treatment at the clearing station, and then transferred further to the rear. The ophthalmologist will have personnel of the medical department and of the army nurse corps to help him at the various hospitals. It will be his duty to properly instruct them in procedures to be followed in the care of eye patients.

The ophthalmological equipment for a battalion or a regiment consist of a number of spuds and similar equipment for the removal of foreign bodies, boric acid, sodium bicarbonate, and argyrol solutions for the treatment of conjunctivitis, and eye bandages or pads. For a division or similar unit, each clearing company in a medical regiment, or medical battalion has a supplemental instrument set for eye injuries. Convalescent hospitals and general hospitals in the communications zone are completely equipped for ophthalmologic care and treatment.

In the theater of operations the ophthalmologist has two problems. The first is the matter of preventive treatment. If military operations are conducted in an area where trachoma is prevalent, troops must be guarded against coming in contact with infected individuals. Dust

conjunctivitis is frequently noted in areas in which the top soil is poor and the earth is covered with a fine layer of dust that gets into the nose, throat and conjunctival sac, producing a conjunctivitis in a large number of individuals. Rest, boric acid washes and warm applications will result in rapid improvement in a few hours in most cases.

The second problem is that of battle casualties in which there are injuries of the eye or its adnexa due either to projectiles or gas. Those injured by projectiles are given first aid as described above and evacuated to the rear. Gas casualties consist of several types depending on the gas used. The lacrimators that might be used are chloracetophenone, brombenzcyanide, or tear gas solution consisting of CNPS* and chloroform. The lacrimators are not dangerous to life but cause copious tearing and intense, though temporary, eye pains. Washing with sodium bicarbonate or boric acid solution and exposure to fresh air is the treatment. The more dangerous gases are the vesicants, which produce inflammation, burns, and destruction of tissue. They consist of mustard gas, lewisite, and ethyldichlorarsine. Immediate washing of the eyes with boric acid or sodium bicarbonate solution is the first aid treatment.

No greater opportunity exists for caring for large numbers of eye patients under field conditions than in the Orient. The movies which I have the privilege of showing depict the work in the eye clinic at Shikarpur, Sind, India, which we had the good fortune to attend as a visiting eye surgeon during the 1939 season. During the period of six weeks, when the hospital is open each year, 6000 patients were seen, and 2500 operations were performed of which 1200 were for cataract. Shikarpur is a native city of about 70,000, in the Sind Desert of northwest India. Here during a six week period each winter come thousands of eye patients — many traveling as far as 500 miles, by train, bullock cart, camel, and even on foot. The city is a former caravan and trade center covering about a square mile. Sanitation is unknown, and in the bazaar food is displayed in close proximity to open sewers. Nearly all the inhabitants of Shikarpur are Hindus, but the mud-hovelled, mud-walled villages of the surrounding country-

*CN — symbol for chloracetophenone.

*PS — symbol for chlorpicrin

side are people by Mohammedans. Most of them are poor tenant farmers, and they present a picturesque sight as they come to the clinic in their bright colored rags, with their wives, children, dogs, goats and bullocks trooping after them. Nor must I forget the "hookah," or large family pipe, and the earrings, nose rings, bracelets, and anklets which the women wear. The older men have long white beards, and large mustaches, frequently dyed red with henna. The hospital building consists of one small structure of four rooms. An admitting room in which two hundred patients can be seated at one time, either on the benches or on the floor; a treatment room for the postoperative ambulatory patients, where eye medication and refraction are performed, and two operating rooms. Each operating room has two rough wooden tables on which the patients are placed. An electric or gasoline light is held over the eye by an assistant. Cutting instruments are kept in pans of alcohol, and the other instruments in pans of constantly boiling water, being removed from their position over the kerosene stoves only during the few minutes that they are in actual use for each operation. Patients are kept in a large compound, consisting of evenly spaced brick pillars, over which canopies of cloth or mats are placed as protection against the rain. They lie on mats or on the native rope beds called "charpais." One relative is permitted to stay with and nurse each patient, and both nurse and patient are fed during the hospitalization period. Boiled rice is the main dish. The prevalence of eye diseases in this area is due to the poor vitamin content of the food, and the unhygienic conditions under which the people live. Perhaps too, the glaring rays of the sun are a factor.

The mornings work starts early, and consists of dressing the bed patients and examining the new patients. Operations begin at about ten in the morning, and continue until all patients are cared for. One day, 150 operations were performed, these included 92 cataract cases, and we did not finish until 7:00 o'clock in the evening.

In the matter of pre-operative preparation, experience has shown that conjunctivitis, dacryocystitis, and pyorrhea are contra-indications to cataract extraction. On the other hand, trachoma, unaccompanied by purulent conjunctivitis is not dangerous. All these types are thoroughly irrigated with 1:2000 mercury bi-

chloride solution immediately prior to surgery, and the contents of the Meibomian glands are thoroughly squeezed out. The operative results have not been worse with trachomatous patients.

A glaucomatous eye with cataract is handled as follows: — Broad iridectomy, followed by cataract extraction at a later date. In performing the iridectomy, the knife is inserted 1mm. temporal to the limbus along the temporal superior portion of the cornea, and the adjacent conjunctiva on the nasal side. The knife is not carried through the conjunctiva until the fluid of the anterior chamber has formed a bleb under the conjunctiva. This reduces the speed with which the fluid of the anterior chamber leaves. In a glaucomatous eye, the lens may be dislocated if the anterior chamber fluid escapes too rapidly. After the bleb is formed the knife is passed through and the limbus section is completed. A slight amount of counter pressure on the sclera, superior to the site of incision causes the iris to bulge, which is then grasped with an iris forceps. First one limb is cut, and then the other, so that a wide opening may result.

Anesthesia consists of cocaine solution 4%, instilled three times at five minute intervals. The method of akinesia, in which the area about the Genuiculate ganglion is infiltrated by 2 c.c. of 2% Pantocaine is used. In very refractory patients, chloroform is used. The extra-capsular extraction is performed in one-eyed patients, patients of the plethoric type, i.e. patients with bulging, large eyes, and in patients with glaucomatous cataract. Cases of extra-capsular extraction are dressed for the first time on the third day, and those of the intracapsular extraction type, on the fifth day. Uncomplicated cases are discharged on the tenth day.

A significant fact for the military surgeon is that in spite of the tremendous volume of patients handled under primitive conditions, the number of cases turning out badly is no greater than those cared for under the most ideal conditions. This demonstrates that, if the technique is properly adjusted to field service and the administrative, supply and personnel features are organized accordingly, excellent results may be obtained, even in the delicate procedures involved in eye surgery.

DISCUSSION

Dr. E. M. Hartlett, Evanston: This has been a very interesting paper from many angles. I am glad the experience in India was shown and discussed, because it illustrates a very important part of the practice of ophthalmology under field conditions. Major Pritikin spoke in brief of some of the eye requirements in the present selective service. It might be interesting to note, although he made no point of it, that color perception or rather the lack of color perception is not a cause for rejection. There has been mention in the press concerning the use of color blind or red and green blind cases in certain observation groups. So far as I have been able to ascertain no such selection has been made in these groups.

The difference in the eye requirements now and in the last war is that while in each case 20/100 is required for each eye, in the 1917-18 requirements it was only required that one eye be correctible to 20/40; whereas at present 20/40 aided vision in each eye is required. It is not required that the draftee have glasses. He merely must have that potential eyesight — unaided vision correctible to 20/40 in each eye. It does not make any difference how long one studies the Tables of Organization of the army, standards change over night. We are now learning about stream line divisions. The old hospital station (division hospital or field hospital) of which there were three in a hospital battalion, no longer exists under that name. The hospital entity is included in a new name, the clearing battalion; three companies, each of which includes some functions of the hospital. I mention that because Major Pritikin, in tracing the casualty from the front line back to the hospital did not mention the hospital facilities — he mentioned only the clearing station.

I think the time element is important. One would like to know how soon an eye injury gets attention. We can only conjecture about this but it is fairly accurate. An eye injury would probably walk to the battalion aid station, which he could reach in from two to five minutes, and there be attended by a medical officer. Atropine was not mentioned in the list given by Major Pritikin, but there must be atropine in the battalion aid station so that it can be instilled in perforating injuries and injuries to the cornea. This casualty having reached the battalion aid station would next walk or be transported by litter to the clearing station about an hour later. The clearing station, probably as in the old set up, would go forward and set up collecting stations to which would walk or be borne by litter the casualties to be picked up by ambulance and transported back to clearing stations under tents, and he would receive a little more detailed eye attention.

Major Pritikin's experience in India where eye surgery is done with crude and primitive hospitalization illustrates very well what can be accomplished by ophthalmic practice under field conditions in time of war.

Dr. R. I. Pritikin, Chicago (closing): I want to

thank Dr. Hartlett for his discussion, and to say that I enjoyed coming before this Section to present this paper.

DIABETES FROM A SURGICAL STANDPOINT

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I have been asked to present a twenty minute paper on "Diabetes from a Surgical Standpoint." I choose to interpret this as meaning: "Surgery in the presence of diabetes," rather than: "The surgical treatment of diabetes." Although much experimental work has been done on the latter, little of practical value has been evolved. On the other hand the former has made enormous strides since Banting and Best gave insulin to humanity. Now surgery upon the diabetic, while still not as safe, other factors being equal, as upon the non-diabetic, has been made so relatively safe that a diabetic need never be denied necessary surgical treatment. The surgery is usually far safer than is the threat of the surgical condition left untreated.

Prior to the advent of insulin in 1921, only the direst emergencies in diabetics received surgical treatment, and in these the mortality was from 40 to 80 per cent. Even these figures do not include the "sins of omission"; deaths because surgery was denied the diabetics which would have saved their non-diabetic brothers. Since insulin has made it possible for the internist to manage and control diabetes, the surgical mortality in diabetes has dropped to as low as 3.3 per cent.¹ Frank N. Allen, writing on "Surgery and Diabetes" in *Surgical Clinics of North America*,² says: "The increased risk is at present not due directly to diabetes but rather to the fact that individuals who have diabetes are likely to be less favorable candidates for operation than the average. The majority are elderly people. Many have degenerative changes in the cardiovascular system. Grave surgical conditions such as carcinoma and gangrene of the extremities are encountered. These factors must be considered in evaluating surgical risk. Fortunately, the danger of coma, the low resistance to infection, and the poor vitality of tissues due to lack of control of diabetes can be eliminated by adequate treatment." McKittrick eval-

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uates the risk in gangrene as follows: "The gangrene patient entering the New England Deaconess Hospital with diabetes and gangrene may be described as a man or a woman 64.4 years of age, with diabetes of 8.6 years duration. If a major amputation becomes necessary, he or she faces a mortality of about 14 per cent. If successful, he has one chance in five to return within two years for amputation of the other leg, and an even chance to be dead in three years"³. Stanbro⁴ says that 31 per cent of diabetics over 60 years of age have gangrene.

Pathological lesions in the diabetic are those of the non-diabetic, plus especially, lesions of the skin due to the excess of sugar in it and lesions of the lower extremities due to circulatory deficiencies. It has been shown that skin infections are much more common in uncontrolled diabetes than in normal individuals. Such lesions as folliculitis, furunculosis, carbuncle, and phlegmons are produced by glycophilic organisms which of course find pabulum favoring their rapid growth in diabetic skin. Arteriosclerosis occurs in diabetics ten years earlier than in non-diabetics. Some authors claim that no one can have diabetes over five years, even though it is under control, without having arterio-sclerosis. From then on it is rapidly progressive. Because of deficient blood supply from this cause, we find the following lesions common, especially in the lower extremities: decubitus ulcers, infections under calluses, local osteomyelitis of phalanges and metatarsal heads, local areas of dry gangrene from occlusion of small arteries, and finally that most feared of all, a moist and rapidly spreading gangrene with secondary gas bacillus infection.

I can think of no condition in which absolute cooperation between hospital departments is more imperative than in the surgical care of the diabetic. Not only must the internist and surgeon pull together in perfect harmony but the anaesthetist, pathologist, dietitian and nurse are all exceedingly important cogs in the machinery which must be set in motion as soon as surgery is contemplated. Should any one of these fall short of his or her duty, death of the patient could well be the penalty.

In emergency surgery: acute appendicitis, perforated ulcer, acute intestinal strangulations, empyema of the gall bladder; nothing is gained and much can be lost by an undue wait for conditioning of the patient. When a surgical emer-

gency is suspected, an internist should be called at once. He can evaluate urine findings and an "emergency" blood sugar determination sufficiently accurately to prescribe proper doses of glucose and insulin for the immediate needs of the patient, while preparations for surgical treatment are being carried out.

Surgery of election presents a much different aspect. There is no need for haste. As with the non-diabetic, the general condition of the patient can be weighed against the dangers of the contemplated surgery. If surgery is decided upon, the internist will probably forbid it until something like the following plan has been followed:

Feed sufficient carbohydrates (at least 150 gm.) to store up a reserve of glycogen in the liver. Await a sugar free urine. There must be a total absence of acidosis, determined by an absence of acetone and diacetic acid in the urine and a normal CO₂ combining power with the blood plasma (55 to 75 volumes per cent); adequate salts and fluid reserve, and a blood sugar within normal limits. However, it is better to have the blood sugar a little high, with a slight "spill" over into the urine, than to institute surgery in the presence of a hypoglycemia with its attendant risk of coma.

The choice of an anaesthetic agent or agents will be governed by factors common to all surgery: the type and length of operation, the skill of the surgeon, the equipment of the hospital, and the general condition of the patient. In addition to these criteria the various anaesthetics have a rather definite scale of safety in diabetes. Chloroform and Avertin are almost universally condemned because of their known toxicity to liver cells. F. P. Coleman says that Avertin produces more hepatic damage than all other commonly used anaesthetics⁵. Ether is listed next, although it is admitted by many operators that it is essential that it be added not infrequently to the gases to avoid anoxemia, as well as to promote better relaxation and so expedite the surgery. The gases come next, nitrous oxide, ethylene, and cyclopropane, probably in this order. Wilcox and Tonell state that cyclopropane does not damage the liver⁶. Local, regional, and spinal are listed as the safest anaesthetics to be used in diabetic subjects, although it is emphasized that local infiltration should certainly not be used in infected areas nor in regions where there is deficient blood supply, lest the

edema further impair the circulation. One reason given for their safety is that vomiting is less likely to follow their use than with inhalation anaesthetics, and vomiting, with its resultant acidosis predisposes to coma. Vomiting, however varies so greatly with different individuals, and even with the same individual under different circumstances that this argument has only relative value. I used local infiltration and regional block in performing appendectomy upon a patient with a known gastric ulcer, hoping thereby to avoid post operative vomiting. She vomited almost continuously for the first eighteen hours. I took nitrous oxide for five minutes early one morning on an empty stomach while a paronychia was lanced and vomited the balance of the day. Another time after a full breakfast of orange juice, cereal, ham and eggs, toast and coffee, I took the same anaesthetic for twenty minutes, had no nausea or vomiting post-operatively and ate a steak dinner that evening.

Surgical treatment in diabetes is comparable to surgical treatment in the presence of any other untoward complication or associated condition. I have seen acute appendicitis in the height of scarlet fever and measles; in all trimesters of pregnancy; in lobar pneumonia; in tiny infants; and in the senile. What did I do about it? Lord Moynihan said that no patient should be permitted to die of one disease merely because he happens to have another. By this same token, I ignored the complication and operated in each case for the appendicitis. We need not ignore the diabetes because now it can be managed, but we must not allow it to deter us from giving adequate surgical care to these people when surgery is indicated.

Joslin says that one in two or three of all diabetics developes surgical lesions. Other writers put this figure as high as fifty per cent.

One of George Ade's fables ended with these words: "This fable teaches that 'haste makes waste,' and 'delays are dangerous.'" This is about the position in which the abdominal surgeon may find himself when a diabetic presents symptoms of acute intra-abdominal disease. On one hand, an impending diabetic coma with its attendant severe acidosis may exhibit nausea, vomiting, fever, leucocytosis (one author reported 80,000), tenderness, and even abdominal rigidity. One must then wait a reasonable time, for in this condition all symptoms and findings

disappear when the proper amounts of glucose and insulin are administered. On the other hand, however, one must not procrastinate too long because intra-abdominal gangrenous processes, such as gangrene of the appendix or the gall bladder, progress much more rapidly in the diabetic than in the non-diabetic.

Of the many lesions of general surgery which the diabetic, in common with the non-diabetic, is heir to, biliary tract disease and thyrotoxicosis demand special mention. Biliary tract disease because of the grave danger of hepatic insufficiency which can be tolerated less well by the diabetic, and thyrotoxicosis because of its close metabolic relationship to diabetes. There should be no putting off of surgical treatment of cholelithiasis or of hyperthyroidism.

Prophylaxis against the lesions common to diabetes, already named: infections and gangrene, should be emphasized. First, rigid control, by the internist of all diabetics at all times. (If this could be, there would be little need to add more here). Then absolute cleanliness of the skin, including vigorous treatment of such affections as "athletes foot"; the wearing of properly fitting shoes; proper warmth of the lower extremities, especially in cold weather; scrupulous avoidance of wrinkles in stockings or shoe linings, gravel or protruding nails in shoes; the avoidance of high heels in women; in fact the avoidance of any and all local irritants which can produce lesions in tissues whose resistance is already lowered by arteriosclerosis, and, in uncontrolled diabetics, by excess sugar in the skin.

The lesions most commonly encountered are, first, infections of the skin, and second, two types of affections of the feet; one in which infection is primary, followed by local necrosis, and the other with primary loss of blood supply followed by secondary infection.

Of the skin infections, the one which probably carries with it the greatest threat to the life of the patient is carbuncle. Fortunately, since its mortality ranges from 25 to 60 per cent, these are uncommon, even in diabetics. It was in regard to the treatment of carbuncle, that I encountered the only divergence of opinion among present day authorities. While most authors insisted upon radical and early surgery, excisions, crucial incisions, with or without excision of the infected material from the under

surfaces of the flaps, Walters and his associates state, speaking of carbuncle: "At the present time in cases of diabetes we are avoiding operation entirely¹." I have followed this plan now for many years in treating carbuncles in non-diabetics with excellent results and no mortality, but since I have been so fortunate as not to have encountered any in diabetics, I cannot speak personally with authority on the subject.

The lesions of the feet in which infection is primary do well under conservative treatment. These consist largely of osteomyelitis of a phalanx under an infected corn and perforating ulcers under calluses. These patients have definite arterio-sclerosis but still have good pulsation in the popliteal, dorsalis pedis, and posterior tibial arteries, and even show a good capillary pulse in the tips of the toes and under the nails. Corns form over the "knuckles" of the toes, impairing the circulation there. In addition to this, flexing of the toes, especially if the shoes are too short, tends to increase the ischemia at the knuckle. The result is that the corn breaks down, and becomes infected. Soon a small perforating ulcer appears. A small probe passed into this perforation will detect bare bone, even before it will show in an X-ray. The treatment is local removal of the toe, leaving the wound open for drainage. I have one patient, a woman in her seventies, for whom I have amputated, at four different times, three toes from one foot and one from the other, each followed by healing. An internist has always managed the diabetes. The other common lesion of this variety, is the perforating ulcer which is found under a callus, as Walters¹ points out, usually under the distal heads of the second, third, and fourth metatarsals because of a fallen transverse arch. I have at present one patient, a man in his seventies, who has had two catastrophies which started in just this way. The first time he presented himself was with a broken down callus in this region, with a perforation extending only to the plantar fascia, but with infection, swelling, fever, leucocytosis and with a grossly neglected diabetes: acetone and diacetic acid in the urine, with blood sugar at 461.9. The diabetes was, after some difficulty, brought under control by the internist, and his plantar fascia, which became gradually and progressively gangrenous, was removed little by little and day by day, until it was entirely cut away and the patient had an incision which

extended from the ball of his foot to his heel and undermined to the lateral borders. During this process the second and third toes manifested local osteomyelitis so were removed along with the heads of their respective metatarsals. He made a slow but satisfactory recovery. Over a year later he appeared with a second perforation under a callus in the same region with osteomyelitis of the distal end of one of these metatarsals. His diabetes was again found out of control. Proper management and removal of the necrotic portion of the bone brought about prompt healing. I stress these examples to emphasize the fact that these cases are not subjects for radical amputations but that they will do well under careful diabetic management plus local surgery.

The last variety is the frank moist gangrene which strikes with a true blitz-krieg. A toe, or a portion of a foot is blue, cold, and swollen, the blood supply is gone, secondary infection rapidly sets in, not infrequently the gas bacillus is present, the patient becomes acutely ill with sepsis, the gangrene is rapidly spreading, a foul, stinking, putrid, semi-liquid mass. Of course major amputation is indicated. The site of amputation will vary with the condition of the individual patient and with the experience of the surgeon. With a good popliteal pulsation, and a healthy skin, one might be tempted to amputate at the "site of election" below the knee; without these findings one would probably amputate with greater safety above the knee; partial amputations of feet in these cases are distinctly contra-indicated.

Most complications following surgery in the presence of properly controlled diabetes are due, not to the diabetes itself but are those common to the age of the patient. Healing will be delayed only in uncontrolled diabetes. If, for example, healing is poor on an amputation stump of a controlled diabetic, then it is due to poor circulation in the skin because of the existing arteriosclerosis, granting, of course, that the site of amputation was wisely selected. A frequent complication of lesions of the feet in diabetics is anaesthesia. This can lead often to disaster. One patient who had a perforated ulcer at the base of the toes and for whom I had ordered hot boric dressings, somehow disengaged his foot from the dressings and brought it into direct contact with an electric pad with three

third degree burns resulting. One opened into the metatarsal-phalangeal joint of the great toe and was much longer getting well than the original lesion. I amputated the head of a metatarsal bone through an existing open wound, by simply biting it off with a bone forceps with the patient in bed in his room and under no anaesthesia. He was totally unaware of what I was doing and felt no pain. The entire plantar fascia was removed piece meal, from the patient mentioned previously, while he was in bed and with the exception of a couple of momentary twinges, without pain.

Infection occurring in diabetics sets up a vicious cycle; it diminishes carbohydrate tolerance; then hyperglycemia, in turn, favors the spread of infection. On the other hand there is a sudden and marked increase in carbohydrate tolerance following the removal of a mass of infective material such as a carbuncle, a gangrenous leg, or the draining of a large abscess, so beware of a sudden post-operative hypoglycemia. In fact for the first three or four post-operative days it is safer to err on the side of hyperglycemia rather than to brave the dangers of a possible insulin shock.

I do not agree with Ryncarson⁷ when he says, speaking of post-operative care: "There must be no division of responsibility; all orders regarding the care of the patient should be given by the medical service." Instead I believe that during the post-operative period, and for so long as the case is "surgical" there should still be the smooth and thorough cooperation which I advocated in the pre-operative preparation, between surgeon and internist. The surgeon might tell the internist, for example, "Today I want this patient to have only parenteral glucose and saline." Then let the internist determine how much of each, when, and the dose of insulin to cover the glucose. The next day perhaps he will allow only surgical liquids by mouth and the day following nourishing liquids. The internist can make his calculations from these specifications. The surgeon will also know, far better than any internist, when he wishes his patient to have an enema, if ever. It is conceivable that the medical service, unthinkingly, or rather, unsurgically thinking, might give an enema too soon and too large for an intestinal anastomosis to stand the strain. Only when the patient has reached his normal, that is, recovered from his surgery, let

the surgeon be dismissed and allow the patient to revert entirely to the medical man for his directions.

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THE CAUSES AND TREATMENT OF SPONTANEOUS ABORTION

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CHICAGO

The problem of spontaneous abortion is a most important one. This can be best understood when we realize that one out of every six or seven pregnancies terminates in spontaneous abortion. It has been estimated that there are some 700,000 abortions annually in the United States. At least 50% of these are spontaneous and the danger to life and health for the women of the United States can be well understood by these figures. It has been further estimated that at least 50% of all parous women past the age of thirty have had one or more spontaneous abortion.

The causes of spontaneous abortion fall into two large groups. The first of these is concerned with abnormalities of sperm, ovum, or defects in germ plasm.

Examination of the male semen shows a rather high frequency of pathology in the sperms. Such pathology varies from mild malformations of the sperm to complete sperm absence. Malformations of the sperm, lack of vitality and motility, marked failure in sperm production, both in size and number, are frequently found in association with inflammations of the male generative tract;

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notably, chronic prostatitis or seminal vesiculitis. These deficiencies can be readily determined by microscopic examination of the semen and examination of the male partner.

An equally frequent cause of abortion is found in improper development and maturation of the ovum. Lack of sufficient vitamins or calcium deprivation are the most common causes of defective ovum production. This is not, however, as easily demonstrable as are deficiencies of the sperm.

An apparently normal sperm may fertilize an apparently normal ovum and yet defective germ plasm may result. The percentage of congenital malformations and defects has been estimated as high as five percent. Careful examination of all embryos found in spontaneous abortion would show a much higher incidence of defective germ plasm. In fact, most fetuses with gross defects die early in utero and are cast off as spontaneous abortions.

The majority of spontaneous abortions will be found to be due to causes that are maternal in origin. In many women spontaneous abortion begins without any pain or uterine contractions. It begins with sudden, painless, causeless bleeding. In such women the site of implantation will frequently be found to be low in the uterine cavity; so low, in fact, that these might be termed miniature early types of placenta praevia.

The second large group of spontaneous abortions finds its origin in endocrine disturbances of the mother. Many of these will be found on careful study to be due to hypothyroidism. This is especially true in this part of the country where evidence of hypothyroidism can be found in well over one-third of all pregnant women who are carefully studied and whose basal metabolic rates are accurately determined. It is a well established fact that without normal thyroid function there cannot be normal estrin and progesterin production.

Abortion is also rather common as a result of disturbed endocrine function of the ovaries themselves. This is particularly true with derangements of progesterin production. Progesterin which is the hormone of the corpus luteum of pregnancy is necessary in adequate amounts not only to prepare the endometrium for implantation but also to inhibit uterine contractions in order that the early pregnancy may remain attached to the decidua. In the early weeks of pregnancy

these necessary amounts are produced by the corpus luteum of pregnancy. With the completion of placentation which is usually about the 12th week, the placenta takes over the function of the corpus luteum of pregnancy. In the event, then, that the corpus luteum of pregnancy stops producing progesterin too soon, or the placenta begins its production of progesterin too late, there results a period in which the patient does not have within her circulation sufficient progesterin to keep the uterus quiescent. These are the patients who abort spontaneously with rather marked frequency and regularity toward the end of the third month of pregnancy. These fall into the group of "habitual abortion."

Infection also plays a role in the production of spontaneous miscarriages. Such infections may be local, involving the endometrium or the uterine wall itself. Focal infection may also be a causative factor and it is well known clinically that acute focal infections, especially those involving the urinary tract, the teeth, or the respiratory system, will lead to spontaneous abortion, the result of secondary deciduitis or placentitis. Generalized infections such as the acute contagious diseases, influenza, pneumonia, etc., always increase the incidence of abortion from the same causes. The story of every influenza epidemic is one of marked increase in spontaneous abortions.

The last group of maternal causes of spontaneous abortion are those which include pelvic disease of the mother. Pelvic infection, as stated, frequently leads to abortion. In addition, pelvic tumors cause abortion. Such tumors may be submucous fibroids which cause abortion as the result of pathologic changes produced in the endometrium. Pedunculated ovarian cysts as well as pedunculated subserous fibroids will cause abortion only when such tumors undergo torsion or acute degeneration. Large pelvic tumors may cause abortion as the result of direct pressure on the growing uterus.

Retrodisplacement of the uterus was formerly held to be a frequent cause of spontaneous abortion. Retrodisplacement per se rarely causes abortion. When such retrodisplacement is found in association with underdevelopment or hypoplasia of the uterus, termination of the pregnancy will occur as the result of this failure of development of the uterus. Likewise uteri held in retrodisplacement as the result of inflamma-

tory or postoperative adhesions will result in abortions. The freely movable uterus lying in retrodisplacement will in the vast majority of instances rise spontaneously between the tenth and twelfth weeks of pregnancy. We no longer find it necessary to replace such a pregnant uterus nor to attempt to maintain replacement by the use of pessaries. It is the consensus of opinion today that such manipulation results in more trauma than if the uterus is allowed to remain in situ and subsequently to rise spontaneously. We have not found it necessary to replace such a retrodisplaced pregnant uterus for the last several years since we have adopted the conservative attitude.

It has been our clinical experience that all instances of spontaneous abortion will fall into one of four groups of approximately equal size. Roughly speaking, one quarter of such spontaneous abortions result from endocrine disturbances, a second quarter, from defective germ plasm, and a third quarter, from low implantation. The fourth quarter is made up of all the other above causes grouped together.

TREATMENT

The best results in the treatment of spontaneous abortion are obtained in the prophylaxis of this condition. Obviously nothing can be done when defective germ plasm or low implantation are the etiologic factors. The greatest amount of good can be done in the women in whom abortion results from endocrine disturbance. All women in whom hypothyroidism is suspected should have basal metabolic rate determination early in pregnancy and thyroid extract should be administered throughout the pregnancy in amounts sufficient to control any deficiency. We have found that the pregnant woman tolerates larger amounts of thyroid extract well. It is our belief that double the usual amount of thyroid should be given during the first three months of pregnancy. Our hypothyroid patients are therefore given two to four grains of thyroid extract daily until placentation has been completed. Following this, one-half to one grain per day will suffice.

The patient who has had previous spontaneous abortions or in whom uterine contractions, vaginal spotting or both appear during the second six weeks of pregnancy should be given progesterin in amounts sufficient to keep the uterus quiescent

and to aid in maintaining the normal progesterin level until such a time as the placenta functions completely. For this purpose, it is well to give at least six units of progesterin per week until well passed the thirteenth week. When threatened abortion occurs such patients must in addition, have absolute bed rest in order that the uterus may have further opportunity to remain quiescent. It is definitely inadvisable to give patients with threatened abortion morphine or any other opiates inasmuch as it has been definitely shown that morphine stimulates uterine contraction during the early months of pregnancy. It has become an accepted clinical fact that while morphine may stop the pain of uterine contractions it nevertheless increases both the frequency and intensity of such contractions.

When a threatened abortion becomes an inevitable abortion as evidenced by effacement and dilatation of the cervix, plus a continuation of uterine bleeding, it is our belief that such patients are best handled by prompt evacuation of the uterine contents. This brings to our attention the long continuing struggle between the so-called Radical and Conservative schools. Invasion of the uterine cavity is, in the majority of instances, a safe procedure. Repeated invasions on the other hand lead to a high incidence of infection and of sepsis. It therefore is inadvisable to invade and empty a uterus where there is even a suspicion of criminal abortion or of previous interference. For practical purposes, it is not difficult in private practice to distinguish between the group in whom pregnancy is undesirable and in whom there has been a criminal interference and the group which is desirous of offspring and which in addition has spent time and money toward the maintenance of the existing pregnancy. For the latter group, prompt emptying of the uterus is advisable when there is no evidence of infection present. Such patients will be saved many days of hospitalization and expense and absence from the family. It should be obvious that such an evacuation must be carried out carefully, gently, and with certain precautions. The cervix should be dilated slowly and gradually with graduated metal Hegar dilators until the canal is dilated to a degree sufficient to admit the examining finger. The products of conception should then be gently freed by the examining finger and removed thereafter by the ovum forceps. The examining

finger shall then be used to determine the fact that the uterine cavity is empty. Following this, it is our custom to lightly curette over the site of implantation with a large, *dull* curette. At no time shall a sharp curette be used and at no time shall dilatation be rapid.

Patients treated in this way in the absence of demonstrable infection are usually home on the third to the fifth postoperative day. This procedure should never be carried out in the presence of demonstrable infection as evidenced by elevation in temperature, leucocytosis, or localized pain or tenderness. When infection is present or when there is reason to suspect previous invasion of the uterine cavity, the patient should be put to bed without local interference until either the uterus has emptied itself or all evidence of infection has been gone for at least 72 hours.

The only exception to this must be made in the presence of serious hemorrhage. Very occasionally, continuous bleeding of appreciable quantities or sudden large hemorrhage requires invasion of the uterus in spite of the existing infection. The risk involved is less than that resulting from continuous hemorrhage and the uterus must be invaded and emptied of the retained products of conception by gentle digital manipulation. Instrumentation and especially curettage are strictly contraindicated and dangerous.

By the adoption then of a course midway between the radical method on the one hand and the conservative method on the other hand, we will achieve our best results in the treatment of incomplete or inevitable abortion by careful individualization of our patients and particularly by careful evaluation of all the factors involved in a given instance of inevitable or incomplete abortion.

During the national emergency we will either make great gains or suffer great losses in our fight against tuberculosis. The gains will come from the chest X-ray examination that will be given the young men entering military service . . . the real losses will come if industry does not adopt the practice of X-raying employees. The massing of labor in concentrated areas creating crowded living conditions, increased mental, emotional and physical strain — inevitable by-products of industrial defense activities — are factors which increase and spread tuberculosis. Kendall Emerson, M. D.

NON-INDUSTRIAL EYE INJURIES

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AND

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In discussing ocular injuries, it is natural to classify them according to type and as to etiology. Industrial surgeons have found that certain types of employment produce certain types of injury. We can apply preventive measures in accordance with causes most frequently encountered. In eye injuries this soon led to the adoption of safety goggles, and where this has been conscientiously carried out, the reduction in the number of major eye injuries has been very striking.

The general surgeon finds a characteristic type of fracture that has developed with the use of automobiles and they are commonly referred to as bumper fractures. In trying to apply this same principle to eye injuries, we meet with difficulty in forming a definite classification. When the cause of the injury does not fall under any definite type or category, it is difficult to formulate satisfactory preventive measures. Apparently, anything can happen and does happen, as I will show later in cases to be reported. One of the commonest causes of serious eye injuries is one that occurs in children and nearly as often in adults. It is characterized by punctured wound of the eyeball produced by cutting instruments or sharp tools where the movements employed are toward the face, rather than away from the body. This common practice, as in whittling a bit of wood with a pocket knife, or trying to untangle a knotted string with a kitchen fork, results in damaged vision. I am surprised to note the rarity of such injuries in manual training schools and believe the instructors have taken pains to educate their pupils in the correct use of tools.

It is true that a large number of persons wearing eye glasses would seem to afford an opportunity for the development of numerous injuries that would fit a similar classification, but when we review the eye injuries coming under our observation the past twenty years, we find numerous mention of minor injuries to the eyelid, brow, or upper cheek caused by breaking of eyeglasses. Surprisingly enough, I have a record

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of only three penetrating injuries of the eyeball from this source. One occurred as follows:

Two police officers were riding in a squad car and the one who was not driving had put on his glasses to write a report. The brakes on the squad car had been adjusted that day and the driver was unaware of the fact. When traffic was blocked, he put on the brakes and stopped the car so suddenly that his companion was thrown against the dash and a knob on the instrument board struck his right spectacle lense driving a fragment into the right eye in such manner that a complete aniridia and traumatic cataract occurred.

The second case was practicing golf strokes in a golf school. A driven ball struck an obstruction, rebounded, striking his spectacle lense, and produced an incised wound of the cornea from the pupillary area to the nasal border, no cataract resulting.

The third case, while watching a golf tournament and wearing glasses, was hit by a player who made an approach shot too soon. Again there was an incised wound of the cornea from nasal border to the pupillary area, but without lense injury and no cataract resulted.

In these two last mentioned cases, injury by fragment of spectacle lens driven into the eye by a golf ball, the scarring of the cornea was insignificant and useful vision has been retained in both cases. It is, of course, not unusual for corneal wounds, when clean cut, to heal with very slight scar formation in absence of infection. We have seen a case where a complete corneal incision bi-secting the pupil horizontally healed with a hair-like scar and retention of useful vision.

The three cases constitute a small percentage when you consider the large number of people who wear glasses. I see no practical method of preventing these eye glass injuries unless shatter proof lenses can be developed which would be more satisfactory for visual purposes than those we are now using. I have, however, prescribed this type of lens for individuals requiring correction for use in football and basket ball.

We will now describe four unusual penetrating injuries, non-industrial in character, which came to our attention in 1940.

R. F., a boy of 17, junior college student, on January 5, 1940, while running along the street at night, ran out along the tree bank under some

shade trees in order to pass some people on the sidewalk. Unnoticed by him, there was a branch with a dead twig which struck him in the right eye penetrating the cornea at nasal border of the pupil and entering the crystalline lens and probably the vitreous, breaking off with a small splinter presenting at the inner aspect of the corneal wound. The patient was seen at the hospital within an hour and the foreign body was removed through wound of entry. X-ray the following day showed no foreign body. Complete cataract developed. Absorption of the lacerated lens occurred rapidly, and on April 22, 1940, discission of membranous cataract was performed. On May 4 with correcting lense a vision of 1.2 was obtained. The uninjured left eye had vision of 1.2-2. By aid of a minimizing lens before the cataract eye, he achieved binocular vision.

On June 20, 1940, a young lady, D. C., aged 21, received a penetrating injury of the left eye. After opening a bottle of Coco-Cola, she placed the bottle on the drain board of sink while washing her hands. She dislodged bottle so it fell into the sink and broke, and fragment of glass struck left eye. We had thought that gas confined in the bottle might have been responsible for the injury, but the patient assured us that she had opened the bottle before she knocked it over. X-ray showed no foreign body. A spicule of glass penetrated the eye at corneo-scleral junction causing an incised wound 4 m.m. in length, vertically disposed and about evenly divided as to corneal and scleral extent. There was an incarceration of the iris tissue, but without prolapse, and no injury of lens could be made out. After a week's hospitalization she was allowed to go home, but was kept under observation. Her unaided vision in the right eye was 0.2 and with a plus 2.00 cylinder at axis 105, vision was 0.6 plus 3. On July 15, a cystic prolapse of iris through the wound was noted at the corneo-scleral junction. This was excised and a conjunctival flap drawn over the opening. The iris was allowed to remain adherent to the inner aspect of the wound. An iridectomy could have been done at the time of injury and thus the cystic prolapse would have been avoided. However, this would have resulted in a distorted pupil and the coloboma would not have been covered by the lower lid in reading, and glare would have resulted. Recovery uneventful and

on August 12 her unaided vision was 0.6 and with a -0.50 sphere, plus 2.00 cylinder, axis 90 equaled 1.0. Intraocular examination negative.

C. M., a boy, aged 14, was admitted to the hospital on November 3, 1940. He had been playing football on a vacant lot, and while running to catch a punt, ran into a thorn apple tree. A thorn penetrated the left eyeball in the ciliary region, upper nasal quadrant. The thorn was evidently green as it did not break. X-ray showed no foreign body. There was considerable hemorrhage in the anterior vitreous in the vicinity of the wound. The eye was kept under atropine and patient kept in bed for five days when anterior vitreous was found to be clear and the tension of eye had returned to normal. On November 20, 1940, right vision was 1.0 plus, and left, 1.0-2, and on November 27, right vision was 1.0 plus, and left, 1.2. Refractive error was very slight and no glasses prescribed.

A. H. the fourth patient, aged 33, came to the hospital on January 1, 1941. On New Year's Eve, she had gone to a restaurant with her husband to celebrate advent of the New Year. Over the heads of the diners were suspended toy balloons, which were inflated to about 10 inches in diameter. The patrons were making merry with these balloons by batting them back and forth and this patient reached up to grasp one of the balloons in both hands and the balloon burst and something immediately struck right eye. Examination showed a complete laceration of the right cornea extending from the lower portion of the pupil toward the corneo-scleral margin near six o'clock. There was also a laceration of the anterior capsule of the lens, which was opaque and lens material protruded in a cauliflower mass to the posterior surface of the cornea.

How are you going to explain a perforated injury of the eyeball caused by a toy balloon? We would not believe it, but there it was. We believe that the cord by which the balloon was suspended had broken when the balloon burst and the contraction of the rubber whipped the string attached into her eye with sufficient force to cause the wound described. We considered also the possibility that a piece of wire, or small nail, or tack might have been attached to the cord. Again X-ray showed no foreign body. It is, of course, possible that a foreign body may have

penetrated the cornea and not remained in the eye. The medical-legal aspect of this latter case prevents our obtaining further information as to what might have caused this accident. Naturally, the owner of the restaurant does not want to give any information that might be used against him in court.

A few remarks about the general handling of penetrating injuries of the eye may be in order.

(1) *History*: A careful analysis of the circumstances that led to the eye injury should always be made and preferably at the first visit of the patient. In cases that have a medical-legal significance, many facts will be admitted at the first visit that may be suppressed or colored after the injured person has had time to reflect or consult an attorney.

(2) *X-ray*: We have a standing order that all penetrating injuries of the eye must be x-rayed as soon as possible, even when there is no history of hammering or the use of metal-cutting tools.

We recall a history of a colored railroad employe where the importance of both procedures is obvious. The employe stated that at the time the accident occurred, he was inside a box car with the door closed, inspecting the interior with artificial light. As he was looking toward the ceiling of the car, he claims to have felt an injury to one of his eyes. No workmen were in the car at the time. The injured employe insisted that he was not doing anything except looking toward the ceiling with the light. X-ray showed a metallic foreign body inside the eyeball. This was removed and careful examination by experts did not identify the metal with any tools used in the car repair department.

It is our belief that this employe was injured off duty, that is, he may have been doing some mechanical work on his own premises or elsewhere, but preferred to make the claim that his injury occurred while doing work for the railroad. His powers of invention were, of course, very limited and it is quite obvious that the injury could not have occurred in the manner described by the employe.

(3) *Local Treatment*: No irrigation should be used where penetrating injury of the eye is suspected. The prognosis of these injuries depends largely upon the presence or absence of infection. We must be careful to do nothing that might introduce infection from without. We cannot avoid the occasional occurrence of blood-

born infection from some other part of the body. The use of an antiseptic ointment and sterile dressing and bandage are considered the best procedure. Rest in bed should be insisted upon, especially in those cases where the intraocular tension is reduced to prevent retinal detachment. Tetanus antitoxin had best be given in all penetrating injuries. In ninety-nine cases it is unnecessary, but there is always the one case that may have been infected with this serious disease.

(4) *Trauma to the Lens*: This complication must be dealt with according to the symptoms which may develop as the result of the injury. The liberation of lens protein in the eye sometimes gives a serious response in the way of inflammation, and foreign protein injections are very helpful in controlling this reaction. The lens substance free in the anterior chamber may obstruct the chamber angle and give rise to increased intraocular tension. Swelling of the lens from the absorption of aqueous may be a factor in producing this symptom. Whether or not the lens should be removed will depend upon the conditions present and no hard and fast rule can be established.

(5) *Enucleation*: The question as to when the eye should be removed is sometimes difficult to answer. There may be a reasonable difference of opinion on this point, even when all would agree that the eye should be removed ultimately. When the eye has been obviously destroyed we know that enucleation must be performed sooner or later. It is sometimes possible to get permission to remove the eye immediately after the accident, but again we find that many patients do not want to consider an important step like this right after the serious injury. It has been our policy to allow the eyeball to repair itself when this is possible, as operation is much easier and results more satisfactory when done in this way.

It is difficult to enucleate a collapsed eyeball and sometimes the implantation of an artificial sphere is not easily performed under these conditions. Also you do not know whether infection is present or not. On the other hand, we have just finished with a case where we believe that an immediate enucleation would have been preferable. The usefulness of the eyeball had been destroyed by a penetrating injury. The patient's general condition was not satisfactory for operation. Infection occurred later and or-

bital cellulitis resulted. The subsequent removal of the eye after the inflammation had subsided was not at all easy, though the results appear satisfactory. Many operators complain to us of difficulty in obtaining retention of the artificial sphere. The reason for the failure to retain an artificial eyeball usually depends upon two conditions. If infection has occurred, the tissues of the orbit are friable and we are very doubtful that any artificial eyeball can be retained. In that case, we would recommend removal of the damaged globe as soon as feasible and not implanting an artificial eyeball until all inflammation or infection is believed to be absent.

The second factor that leads to the failure of retention is the lack of drainage. By closing Tenon's capsule and the conjunctiva over the artificial sphere, an impervious diaphragm is formed across the anterior orbit, and it is the pressure of fluid behind this diaphragm that causes the extrusion of the artificial eyeball. Drainage is imperative. If a small incision is made at the external canthus through the conjunctiva and into the muscle cone, and the sterile gauze wick is introduced, no difficulty will be encountered in retaining the artificial sphere, for the reason that hemorrhage or exudate is allowed to escape. We gradually withdraw the wick of gauze, taking out the last of it about the fifth day. In support of this technique, we may say that we have had only one artificial eyeball extruded in the last ten years, and that occurred because of the friability of the tissues following an orbital cellulitis accompanying the injury.

We cannot close the discussion of this subject reasonably without mentioning sympathetic ophthalmia, which occurs in a small percentage of penetrating injuries. We have been fortunate in this respect. The only case coming under our observation was not the result of an accident, but followed carefully planned cataract extraction. It has been our policy to remove all irritable or painful eyes where useful vision has been lost. As a further safeguard we advise removal of all eyes where the eyeball is disfigured as the result of the injury, for cosmetic reasons. The fact that our industrial patients are under supervision by a medical department may account for the low incidence of sympathetic inflammation.

It is true that the literature shows authentic cases of sympathetic inflammation occurring a few weeks after the initial injury. Most of our

penetrating wounds have been observed for a period of two to six or eight weeks before enucleation was carried out, and our experience so far has not indicated that we have been taking undue risk. It is not always possible to say immediately after an injury whether the prospect of vision is entirely gone and the cosmetic result also may be in doubt until longer period of observation has elapsed.

In the medical treatment of iridocyclitis following trauma, we have come to rely upon sodium salicylates more than any other drug except atropine. We would like to repeat the advice of the late Harold Gifford, who suggests the use of sodium salicylates in doses of one grain per pound of body weight in twenty-four hours. We would add to this the intravenous use of the same drug in 15 to 30 grains dosage, especially where it is not well tolerated per os. This is even helpful in the lens reaction referred to above as an adjunct to foreign protein therapy. Sulphanilamide, or its less toxic derivatives, should give promise in ocular infection as stated by Dr. H. W. Woodruff in a recent communication.

DISCUSSION

Dr. Herman R. Davidson, Chicago: Doctors Smith and Wadsworth are to be congratulated on bringing these unusual eye injuries to our attention. There is a suggestion that injuries to adults and children by sharp tools could be avoided by proper education in handling such tools, especially in the home. Their three cases of injury by the penetration of spectacle lenses would call for universal use of hardened lenses or some other lighter plastic material that does not shatter.

The four unusual cases almost defy any known safety measure of prevention. Surely one cannot prevent a boy from running along the street at night; nor prevent a young lady from drinking coco-cola; nor prevent a boy from running after a football; nor expect a lady to desist from breaking balloons that float by her table on New Year's Eve.

Their points on the handling of injuries are excellent and I am sure we can all profit by their advice. I want to emphasize one of their suggestions, namely, to make a small incision at the external canthus through the conjunctiva into the muscle cone and introduce a gauze wick to prevent loss of the artificial implant.

Everyone who has practiced long enough sees the unusual sooner or later. A high myope wearing his glasses getting out of his bath, slipped, broke the lens, and made a perfect cataract incision above with slight prolapse of the iris, and this healed up as well as if he had been operated on aseptically. Another case was the penetration of the globe by an

icicle which broke off from the roof. Still another unusual one was penetration of a globe by a "bobbie pin" while the patient was asleep in bed with his lids closed. In all of these unusual accidents there is no known way of prevention.

There is another type of post-Christmas accident that is preventable. The sale of a metal compound with molds to make toy soldiers should be prohibited. On heating this metal sometimes a "wet spot" gets under the metal and explodes, with resultant face and eye burns.

A careful record of all non-industrial accidents and the manner of their occurrence should be kept. Nowadays the insurance companies have reached down to the individual with resultant legal aspects.

Dr. Hiram J. Smith, Chicago: I have a few pictures to show, some of which are of patients described in the paper. I would like to see pictures taken of injured eyes in all cases, and I am going to have them from now on. I cannot think of any better record than an actual photograph of the eye.

The slides which I shall show now give the results obtained in three penetrating injuries of the cornea of unusual origin; also one secondary glaucoma with complete iridoplegia following cerebral concussion, and a case of subconjunctival hemorrhage, idiopathic type, in a young patient.

PREPARATIONS FOR A GAS ATTACK

It is known that the Germans have large quantities of poison gas available and therefore a gas attack on this country on a large scale is regarded as a definite possibility. As part of air raid precautions, anti-gas measures are receiving attention. It is recognized that the first experience of gas might cause alarm. It has been said that a people who can stand the terrors of aerial warfare as at present known to them will not be broken by gas as long as they are prepared. Surprise would be its chief advantage. A new gas is of course not impossible, but experts believe that any development in gas technic is more likely to be in new methods of releasing the poison. The official advice is to be suspicious of any unaccountable smell or effect on the eyes, nose or lungs and to put on the respirator immediately. Any attempt by civilians to distinguish the particular gas is discouraged as likely to involve unnecessary exposure.

At the air raid precautions school there are almost unlimited opportunities to demonstrate the effect of chemical warfare. Dissemination of gases is studied at close quarters, and methods of detection are demonstrated. The decontamination service comprises squads of five men . . . [censored]. Reserves must be available. Local authorities are arranging for the interchange of first aid and gas decontamination services. These authorities have prepared as far as possible for the rapid recovery of all public services after a gas attack. But individuals must look after their own safety as they have been instructed in anti-gas measures by government leaflets.—J. A. M. A., May 24, 1941, *London Letter*.

MALARIA TREATMENT OF NEUROSYPHILLIS AND MALARIA AMONG DRUG ADDICTS AS PUBLIC HEALTH PROBLEMS

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Since the discovery of the cause of malaria by Laveran in 1880, the subsequent proof in 1897 by Ross and in 1898 by Grassi and his associates that anopheline mosquitoes are responsible for dissemination of the infective agent, there have been two interesting developments that have opened new channels for the spread of this disease: (1) the introduction of artificially induced malaria fever as a means of treating neurosyphilis by Wagner-Jauregg in 1918; (2) the emergence from Egypt in 1929 of the vogue of common use of the hypodermic syringe by drug addicts for the intravenous administration of heroin.

While it is true that malaria is still spread principally by certain species of anopheline mosquitoes from cases and carriers of the plasmodia, we now have two new artificially created reservoirs. In artificially induced malaria therapy the mosquito would still be the vector for naturally occurring secondary cases, but in drug addiction we have a different agent of transmission, the hypodermic needle. In both instances certain interesting potentialities present themselves.

In artificially induced malaria therapy the benign tertian strain is generally used. The strain employed has presumably lost its ability to form gametocytes and so should not be able to be transmitted by anopheline mosquitoes. This was the original contention of Wagner-Jauregg¹ who stated gametocyte formation is inhibited by continuous human passage. On the other hand Plehn,² Mari,³ Bravetta,⁴ and Muhlen and Kirschbaum⁵ reported finding gametocytes after as many as forty human passages. They used both the tertian and quartan plasmodium. Fischer⁶ and Yorke and Wright⁷ using a tertian strain passed through 53 individuals artificially, reported the successful trans-

mission of malaria from patients to healthy persons by anopheline mosquitoes.

Evidence would point therefore to the fact that benign tertian malaria may not permanently remain in its asexual form, and patients so inoculated may infect mosquitoes and lead to secondary cases. This is suggested by three reports. Kling⁸ in 1926 reported two cases in Sweden in patients located 100 meters from the ward in which patients inoculated with malaria resided. A report in *Lancet*⁹ of July, 1934 mentions a case in a laborer working near an asylum in Paris where malaria therapy of paretics was employed. Shaughnessy¹⁰ in 1936 reported 15 cases of malaria related to an institution in southern Illinois where malaria therapy was employed. Seven were uninoculated inmates who had been in residence for some time, six were employees, and one was a bedridden child living three blocks from the institution. It was found that *Anopheles punctipennis* and *Anopheles quadrimaculatus* were breeding freely in an ornamental pool within 150 feet of the malaria therapy ward and in other spots on the grounds. The patients were kept in unscreened quarters. Smears from the blood of patients receiving malarial therapy showed gametocytes capable of infecting mosquitoes. While no dogmatic statements were made in conclusion, there was evidence to suggest that the outbreak could have been secondary to cases receiving malarial therapy.

Soon after introduction of artificially induced malaria treatment of neurosyphilis, the United States Public Health Service circularized the mental hospitals in regard to the employment of measures that would prevent the unnecessary spread of the disease. If patients receiving this type of therapy are isolated in properly screened quarters during the mosquito season, and if after completion of the treatment they receive a standard course of antimalaria therapy and are not released until blood smears show the absence of malarial parasites, any resultant hazard would be remote.

On the basis of a questionnaire sent to fourteen mental hospitals in various parts of the United States it was found that there was considerable inconsistency in regard to isolation of the patient, screening of quarters, terminal therapy and final release as being free from malaria. All of the hospitals reported that no secondary

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cases had occurred traceable to inoculated paretics. On the basis of the small number of cases of malaria suspected as being secondary to artificially inoculated patients, the hazard would seem to be more apparent than real. Possibly more thorough epidemiology might alter the picture somewhat. Regardless, however, the situation still warrants the consistent employment of accepted preventive measures.

In Illinois the State Department of Public Health requires that institutions employing malaria therapy follow accepted procedures in the isolation of patients during treatment and subsequent release of patients after completion of treatment. In order to follow more closely the final disposition of such cases, the following special form was introduced for the reporting of artificially induced malaria:

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

Division of Communicable Diseases

Form For Reporting Artificially Induced Malaria

Date

Name

Age Sex Color

Date of admission to institution

Diagnosis

Approximate date of primary lesion

Date and duration of antiluetic treatment if any*

.....

Date malarial treatment instituted

Type of malarial parasite employed

Method of inoculation of patient

Approximate number of rigors that occurred

Date antimalarial treatment instituted

Name of drug employed in antimalarial treatment

Dosage and duration of antimalarial treatment

Date of release as free from malarial parasite

Release of patient based on how many negative blood smears

Dates of blood smears

..... M. D.

Managing Officer

*Include here information, if available, concerning type of antiluetic drug employed, number of injections, etc.

During 1938 and 1939 there were 24 and 37 cases respectively of artificially induced malaria reported to the Illinois Department of Public Health.

The first epidemic of malaria among drug addicts due to common use of the hypodermic syringe was described by Biggam¹¹ in 1929. In 1932 Geiger¹² reported five cases in morphine addicts. Four were of the benign tertian type and gave a history suggesting common use of a hypodermic syringe. In 1934 Helpern¹³ described 49 cases occurring in New York City. In 1940 Most¹⁴ gave an extensive report on malaria found in drug addicts in New York City from 1933 to 1938 inclusive. He found the malignant tertian

(P. Falciparum) to be the common type, and the user of heroin by the intravenous route to be the person usually involved.

In Chicago we have been aware of the transmission of malaria in drug addicts by common use of the hypodermic syringe for some time. Table 1 shows the incidence of this disease in drug addicts from 1933 to 1939 inclusive.

TABLE 1			Cases in	Total	Per Cent.
Year	Type of Drug	Addiction	Drug Addicts	Cases Reported	In Addicts
1933	Morphine	5			
	Non-specified	3	8	47	17
1934	Heroin	1			
	Morphine	1			
	Non-specified	1	3	25	12
1935	Heroin	8			
	Morphine	2			
	Non-specified	7	21	83	25
1936	Heroin	16			
	Morphine	2			
	Non-specified	15	33	75	44
1937	Heroin	12			
	Morphine	3			
	Non-specified	13	28	68	41
1938	Heroin	18			
	Morphine	6			
	Non-specified	17	41	89	46
1939	Heroin	16			
	Morphine	3			
	Non-specified	16	35	91	35
Total 1933 to 1939			169	478	35

Table 2 shows the total deaths from malaria during 1938 and 1939 and the per cent. of total deaths occurring in drug addicts.

TABLE 2			Per Cent.
Year	Deaths from Malaria in Drug Addicts	Total Deaths from Malaria	of Deaths in Drug Addicts
1938	10	12	83
1939	17	21	81
Total 1938-'39	27	33	81.8

In order to determine the experience in other parts of the United States, a questionnaire was sent to the other fourteen largest cities in 1939. The health departments of ten of these cities had no information on this subject because malaria was not tabulated according to whether the patient was a drug addict or not. From Detroit, although no statistics were available, it was reported that on the basis of observation in the psychopathic ward of the Receiving Hospital, probably the majority of cases of malaria treated in the institution were in drug addicts. It was learned from Minneapolis that the three cases reported in 1937 were drug addicts and that the infection had been transmitted from one of them to the other two by common use of a hypodermic syringe. Philadelphia reported that of the 44 known cases of malaria from 1936 to December

18, 1939, five were drug addicts. The City of New York Health Department reported that from 1937 to and including the first eleven months of 1939 there were 253 cases of malaria reported of which 117 or 46 per cent. were in drug addicts. Morbidity statistics were not available prior to 1937 on the incidence of malaria in drug addicts. From 1933 to and including the first eleven months of 1939 there were 131 deaths from malaria of which 110 or 83 per cent. were in drug addicts. It is interesting at this point to note the similarity of the Chicago and New York figures in regard to per cent. of total cases and deaths from malaria that occurred in drug addicts which were 41 and 46 per cent. of the cases respectively, and 82 and 83 per cent. of the deaths respectively.

From 1937 to 1939 there were six deaths from malaria in drug addicts at the Cook County Hospital that came to autopsy. These cases exhibited findings similar to those in the cases studied by Most at the Bellevue Hospital, New York City. The patients were either in coma or markedly toxic and expired a few hours after admission. From the histories of the cases the common symptoms were chills, fever, headache, stiff neck, vomiting, diarrhea and pain in the abdomen. The malignant tertian parasite was found in four of the cases, and in the other two the type of parasite was not identified. In a series of blood smears from known drug addicts submitted to the laboratory of the Illinois Department of Health during 1938 and 1939 for diagnostic purposes, the parasite found was of the benign tertian type.

In Chicago the drug commonly used by addicts is heroin. The type of heroin obtainable is so adulterated that it contains about two per cent. of anhydrous heroin. The addict shoots himself with an average of 50 to 100 grains of this product per day in order to actually get one to two grains of pure heroin. In spite of the numerous hypodermic injections seldom is complete satisfaction obtained. The administration of the drug is attempted primarily by the intravenous route. Most of the addicts place a hypodermic needle over the end of a medicine dropper and use this in place of a syringe with little if any attention to asepsis. The transmission of malaria, of course, results from common use of the hypodermic needle. The fact that each addict has to resort to so many injections

per day in order to satisfy his craving should also favor the spread of the disease. The addict does not commonly carry his hypodermic outfit with him due to fear of being picked up by the police with it in his possession. When in need of the drug he will visit one of his addict friends and while there, will use the other individual's hypodermic outfit.

Malaria in drug addicts would be difficult to control. If strict asepsis were adhered to in the administration of the drug, the artificially transmitted disease should disappear from this group. Whether such education could be accomplished remains to be proven. While it is true that a reservoir of malaria is maintained in drug addicts, it is questionable whether in Chicago this would ever prove to be a hazard to the general population. It has been suggested that drug addicts should be searched for latent cases and carriers, and such cases and carriers should be treated so as to render them gametocyte free. Such a program would be expensive, extremely difficult to carry out, and would probably not produce much tangible result. In Chicago at the present time the mosquito population capable of transmitting malaria is so small that the possibility of the transfer of malaria from a drug addict having the disease to the general population by such mosquitoes would be remote. According to the report of the Desplaines Mosquito Abatement District, about two-tenths to one per cent. of the mosquitoes caught each year in the Chicago area have proven to be *Anopheles quadrimaculatus*, and one to two per cent. *Anopheles punctipennis*. The former is a good carrier of malaria, but the latter is a very poor carrier of the disease. In cities such as New York and Chicago the drug addict will definitely influence the annual statistical picture of malaria both in regard to morbidity and mortality. Other than that, in Chicago, the problem in drug addicts would seem to be one peculiar to that group, and not of general public health importance.

SUMMARY

1. Since the introduction of artificially induced malaria fever as a means of treating neurosyphilis by Wagner-Jauregg in 1918, three outbreaks totalling 18 cases have been reported in which there was evidence pointing to the fact that these cases could have been secondary to

patients artificially inoculated with the plasmodium of malaria. It is suggested that accepted procedures in malaria control be employed in and around institutions using this type of therapy.

2. Evidence has been presented to the effect that the spread of malaria among drug addicts by use in common of hypodermic syringes has occurred and is occurring in various parts of the United States. The greatest concentration of such cases appears to be in New York City and Chicago. But this would be better clarified if other large cities would tabulate reported cases of malaria according to occurrence in drug addicts and naturally occurring cases. Both the benign tertian and malignant tertian strains of plasmodia may be spread among drug addicts. In fatal cases the plasmodium falciparum seems to be most common. Whether a preventive program should be attempted among drug addicts is open to question, but in any event such a program would be extremely difficult to carry out. 5052 Marine Drive

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A college president who would never tolerate a contaminated water supply on his campus must learn not to permit an open, broadcasting case of tuberculosis loose among his young people. Sneaking tuberculosis must be painted as the crippler and killer it is, more to be feared than the sporadic, dramatic visits to the campus of such well publicized maladies as influenza, measles or mumps. Mild illness in the mass fills the headlines, while deadly tuberculosis, working twenty-four hours a day in its own quiet fashion, goes on filling sanatorium beds and cemetery plots. Charles E. Lyght, M.D.

OBSERVATIONS ON PNEUMONIA OF INFANTS AT COOK COUNTY HOSPITAL, SEASON OF 1941

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In the infant ward at Cook County Hospital careful observations have been made in the cases of primary pneumonia under one year of age for the past several years. Since March 1939 these babies have been treated with sulfonamide compounds with a material reduction in the mortality and hospital stay. The cases seen in 1939 and 1940 were treated with sulfapyridine, and this group has been previously reported. Since it is true that epidemics of pneumonia vary from season to season in both their specific etiology and in their behavior as far as clinical manifestations as well as mortality are concerned, it is worth while comparing the findings of various years so that the value of a particular type of therapy may be gauged. In January and February of this year it was noted that the acute respiratory tract infections in these babies were different in certain respects, from those observed in 1939 and 1940. The infants were entering the ward in large numbers and seemed desperately ill. The degree of toxemia was great, the temperature only moderately elevated, and respiratory embarrassment was a prominent symptom. The infants were blue, very dyspneic, often revealed a considerable degree of paralytic ileus with abdominal distention and in many cases appeared to be in extremis at frequent intervals during the first few days of their hospital stay, requiring almost constant and heroic symptomatic therapy to combat their extreme respiratory embarrassment. On physical examination the outstanding feature of the pulmonary findings was the presence of a diffuse asthmatic type of bronchitis with generalized dry rales and prolonged expiration noted over the chest, associated with scattered subcrepitant rales and in some cases evidences of atelectasis in various areas. Furthermore the early cases did not seem to show the dramatic response to sulfapyridine that we had become accustomed to see in the majority of the pneumonias observed

in previous years. We, therefore, decided to use sulfathiazol in the therapy of all cases during this period since we suspected that the specific etiology might differ from that seen in preceding years. It is this group of 200 infants seen during 1941 and treated with sulfathiazol which is the subject of this report.

Table 1. Comparative Study of Pneumonia Statistics.

Age of Patient	Birth to 3 Months	3 Months to 6 Months	6 Months to 9 Months	9 Months to 12 Months	Totals
1 No. of Cases	52	53	42	37	184
9 Recovered	29	39	30	27	125
3 Died	23	14	12	10	59
7 Mortality	44.23%	26.41%	28.59%	27%	32.06%
1 No. of Cases	47	85	83	74	289
9 Recovered	25	51	60	61	197
3 Died	22	34	23	13	92
8 Mortality	46.8%	40%	27.71%	17.56%	31.83%
1 No. of Cases	41	66	52	41	200
9 Recovered	36	58	48	38	180
4 Died	5	8	4	3	20
0 Mortality	12%	16%	7%	7%	10%
1 No. of Cases	57	58	52	33	200
9 Recovered	55	57	51	33	196
4 Died	2	1	1	0	4
1 Mortality	3.5%	1.7%	1.9%	0	2%

Table 1 shows the age distribution and mortality in the 1941 series compared with those treated at County Hospital in previous years. It will be noted that in 1937 and 1938, before any specific chemotherapy was used, the average mortality in these cases of pneumonia was 32% and 31% respectively. In 1940 when all cases were treated with sulfapyridine, the mortality dropped to 10% and in 1941, the series which is the subject of this report and was treated with sulfathiazol, the mortality for the entire group was but 2%. When the cases are divided according to age groups, we find as expected, that the youngest infants reveal the highest mortality. But here again in our present sulfathiazol treated series the death rate has dropped to 3.5% in the 57 infants under 3 months of age. In the 1940 sulfapyridine treated series of 41 infants in the same age group 5 or 12% died, while in the 1937 and 1938 series which received no chemotherapy the mortality was 44% and 46% respectively. In the group from 3-6 months of age the mortality was 1.7% in the sulfathiazol series, 16% in the sulfapyridine treated series, and 26% and 40% respectively in the 1937 and 1938 infants. In the babies over six months of

age there is further reduction in the mortality, only 1 baby in this group died in the sulfathiazol series, 7% in the sulfapyridine series and around 27% in the 1937 and 1938 series. These figures are striking and require little comment. All of these infants were treated by essentially the same personnel and by similar methods with the exception of the use of sulfonamide drugs. While it is true as pointed out previously that the character of the disease is different in succeeding seasons, the drop in mortality is so definite that it must be a valid reduction. We may, therefore, say that though the infants observed this year were much sicker than in the previous years, caused much more anxiety and much greater physical effort in their management than in the preceding groups, the mortality was surprisingly low. It is our feeling that this fact is due only in part to specific drug therapy. It is also of interest that in the 1941 series the younger babies were the ones most frequently involved; 57 of this series of 200 were under 3 months of age, while in 1937 there were 52 of 184 cases, in 1938, 47 of 289 cases, and in 1940, 41 of 200 cases in this age group. Similarly in the oldest infants those between 9 months and 1 year of age there were 33 in the sulfathiazol series, 41 in the sulfapyridine series, 37 in the 1937 series and 74 in the 1938 series.

Bacteriology. From a practical standpoint a great deal is gained if the specific etiologic factor is isolated in the pneumonia of infancy. Though it is neither necessary nor desirable to wait for the results of cultures before the infant is placed on drug therapy one should not overlook the importance of obtaining material for culture as soon as possible and before the blood stream has accumulated an appreciable quantity of the drug. Sputum should be obtained in all cases and if possible blood cultures should also be taken routinely. In small infants obtaining sputum constitutes a major problem but with care an organism will be obtained in most cases. The various methods used have been previously described. In this series of infants we found pneumococci in the sputum much less frequently than we had in either the 1939 or 1940 series. In the 1941 group no organism could be obtained in 59 or 29.5% of the cases. In 10 cases no typing was done and in the remainder an organism was isolated, usually a pneumococcus. In the 1939 series only 2 sputa were negative and

in 1940, 9 specimens failed to yield organisms. Where pneumococci were obtained the distribution according to type was similar to that noted in previous years, though 5 cases fell in Type III, a rather large proportion of the group where typing could be obtained. As in previous years Types XIX and XIV were the commonest with 11 and 8 cases respectively. Type XXIII also showed 8 cases, types VI and XI, 7 cases each and Type XXXIII, 6 cases. Of the four fatalities in this series only 1 yielded a pneumococcus in the sputum, which was Type XIX. Thus another different feature of this series from the 1939 and 1940 group lay in the rather large proportion of cases in which no pneumococcus could be isolated. This again led us to postulate some other etiology, and suspicion naturally was di-

rected to a virus as a possible cause. Attempts were therefore made to isolate a virus from nasopharyngeal washings, sputum, and in some cases from other body fluids, all of which were unsuccessful. As in previous years the bacteriology in these infants was carried out by the Chicago Branch Laboratory of the Illinois State Department of health under the direction of Dr. H. J. Shaughnessy. The virus studies were carried out by Dr. Zitches of this laboratory. (Table 2)

Therapy — On admission these infants were immediately placed on sulfathiazol in much the same manner as in the sulfapyridine treated series. In those infants who were vomiting, were badly distended and required continuous gastric aspiration, or were in collapse the drug was initiated as the sodium salt intravenously. The others received sulfathiazol in powdered form in dosages approximately $11\frac{1}{2}$ grains per pound of body weight per day divided into six equal amounts administered at four hour intervals. As a rule an initial dose of one half the total 24 hour dose was given. Table 3 shows a resume of our observations on this therapy in comparison with similar findings in the 1940 series of 200 cases which received sulfapyridine.

TABLE 2. BACTERIOLOGY

Type	1939	Recovered 1940	1941	1939	Died 1940	1941
I	2	1	2			
II	1		1			
III	1	4	5			
IV	1	4	3			
V	1		2			
VI	8	14(12(2))	7	3		
VII	3	9	4	1	5	
VIII		1	3			
IX		1	2		1	
X		2	X A 1			
XI	1	6	11			
XII	(1)		3			
XIII		2(1(1))	1			
XIV	15(14(1))		8			
XV	6(5(1))		4			
XVI	2(1(1))		3			
XVII	(1)		5			
Not Obtained	4	9	6		11	3
Neg. Sputum	2	9	57			
Staph					1	
Hemolytic Staph	8	70	3			
Totals	52	98	131	4	18	3
XVIII	3	4	3	(1)		
XIX	9(6(3))	21(16(5))	10	1		1
XX	1	8	5	1	(3)	
XXI	2	4	2			
XXII		4	4			
XXIII	2	10(4(6))	7			
XXIV		3(2(1))			(3)	
XXV						
XXVI						
XXVII						
XXVIII	3(2(1))	3	2			
XXIX		5			2(1(1))	
XXX						
XXXI		2(1(1))	1			
XXXII	1					
XXXIII		1	6			
Reilly			2			
Hemolytic Strep.	5	6	8	1		
Strep. Viridens	8(5(3))	12	5	1		
Indiff. Strep.		7	9			
Unclass. Pneumo.	2	5	1		1	
Totals	29	82	65	4	2	1

TABLE 3. RESUME OF PNEUMONIA

Jan.-Feb. 1941			
Average Age of Entire Group (200 Cases) — 5 Months			
Average Stay in Hospital — 10.8 Days			
Complications	—	Total Number	69
Sup. Otitis Media.		—48.	
Diarrhea.		—8.	
Empyema.		—2.	
Pneumococcic Meningitis		—1.	
Circulatory Collapse and Abdominal Distention		—7.	
Tracheo-Bronchitis		—3.	
Therapy Other than Specific			
Oxygen			
Blood Transfusions		—103	
Continuous Gastric Aspiration.			

It will be noted that the average total dose of sulfathiazol was 95 grains while that of sulfapyridine was 75.04 grains. Similarly the average number of days on specific therapy was greater in the 1941 series, being 6.9 days in comparison with 4.12 days in the 1940 series. This confirms the statement made previously that the drug seemed definitely less effective than in the 1940 cases in most of which a pneumococcus was isolated since more of the drug and a longer period of therapy were required. This fact should not be interpreted as indicating

less effectiveness in the case of sulfathiazol but rather a difference in the character of the pneumonia dealt with in the 1941 series. Toxic effects were also seen much more often this year, vomiting being observed 31 times. It may still be said, however, that this very young age group tolerates the drug very well, comparatively much better than older children or adults. In spite of the evidence of less effectiveness of the chemotherapy the mortality was but 2% in the sulfathiazol treated cases and 10% in the sulfapyridine treated series. This we feel again should not lead to the conclusion that the cures were effected by the therapy but more probably indicate a benign type of pneumonia. As in the 1940 series specific serum therapy was used in combination with the drug in those cases which yielded a pneumococcus and were desperately ill, usually with excellent effect.

Symptomatic therapy played an extremely important role in this 1941 group, in fact many of these infants were undoubtedly saved by the persistent and untiring efforts directed to combat cyanosis and abdominal distention. The measures employed and their indications were as follows:

Parenteral Fluid — Fluids in the form of 2.5 to 5% Dextrose in normal saline or Dextrose — Hartmans solution — were administered by the subcutaneous and intravenous route when oral administration was not feasible. Hypertonic fluids as 10 or 20% Dextrose were used in some instances to combat cerebral oedema.

Whole Blood — Critically ill patients were given blood transfusions. Intramuscular blood was given to all infants on admission as a routine measure. 75-100 cc. of whole preserved blood was administered by slow intravenous drip and repeated as frequently as indicated by the condition of the infant. The external jugular and scalp veins or more commonly, the superficial veins of the extremities with cut down technic were used. The frequent and free use of blood seemed to be a most effective aid.

Oxygen — Oxygen was administered to all infants who were dyspneic and cyanotic. The oxygen tent was an effective and important means of relieving such symptoms and their accompanying restlessness. Further, the cooling effect of the tent was utilized to combat the hyper pyrexia that occurred in these cases. When tents were not available oxygen by nasal catheter

was used.

Abdominal Distention — This complication, occurring frequently and seriously impairing the respirations of the infant, required prompt relief. A routine consisting of pitressin ($\frac{1}{2}$ -1 ampoule) or prostigmine ($\frac{1}{2}$ -1cc 1:4000 solution) hypodermically, soap-suds enemas, heat to the abdomen and an indwelling rectal tube, was employed as the most effective means of relief.

Shock — was a frequent complication and required emergency therapy. Caffeine and adrenalin either singly or in combination, were used by hypodermic or intravenous routes. Intracardiac adrenalin was used when heart tones were not audible and other means had failed. In four instances the heart tones reappeared and the patients ultimately recovered. Artificial respiration, external heat, and reverse Fowler's position were used in addition to the drugs.

Convulsions — When convulsions occurred, they were controlled by sedation and spinal puncture. Seconal was employed rectally in dosages of 1/10 grain per pound either in the form of a punctured capsule or in solution as a retention enema. When this failed, intravenous sodium amytal was effective. Spinal punctures were done for diagnostic purposes as well as to relieve increased intracranial pressure. Intravenous hypertonic glucose was employed with the spinal puncture.

Wheezing — was treated with adrenalin hypodermically, ephedrine and phenobarbital by mouth, and steam inhalation. These measures were usually effective but not uniformly so.

Atelectasis — when suspected by physical examination or Xray, was treated effectively with frequent CO_2 inhalations and changes in position of the infant.

Diarrhea was a fairly common problem but responded to the usual simple method of treatment.

Complications — A list of the complications seen in this series is given in Table 4. Suppurative otitis media was the most common complication and occurred in 48 or 24% of these cases. Diarrhoea was noted 8 times and circulatory collapse with abdominal distention occurred in seven infants. Empyema was found in two of these infants. This complication has become definitely less common since specific drug therapy has been employed. In the 1939 and 1940 series no single case of empyema was found in

TABLE 4. — RESUME OF SPECIFIC THERAPY.

1941	200 Cases	1940	200 Cases
Average Total Dosage of Sulfathiazole	—95 gr.	Average Total Dosage of Sulfapyridine	—75.04 gr.
Average Number of Days on Therapy	—6.9 Days	Average Number of Days on Therapy	—4.12 Days
Toxic Effects		Toxic Effects	
Edema	—1	Toxic Eruption	—1
Vomiting	—31		
Mortality	2%	Mortality	10%

these infants. Thus but 2 instances have been observed in 489 cases of primary pneumonia under one year of age. One of these was a 6 month old white infant who entered the hospital January 24, 1941 on the 8th day of her illness. She had had fever, cough and repeated vomiting during this period and on admission was dyspneic, cyanotic and toxic. Physical and Xray findings indicated an effusion in the right chest which on tapping yielded a thin brownish pus. The sputum revealed a *Pneumococcus* Type XXII, though this organism could not be obtained from the pleural exudate. She received 190 grains of Sulfathiazol over a period of 12 days and 130 grains of sulfapyridine over a period of 7 days. 100,000 units of type XXII antipneumococcus serum was given intravenously on January 25 when the organism was reported in the sputum. Her condition was grave, she had marked respiratory embarrassment and cyanosis and was kept in an oxygen tent continuously. A bilateral suppurative otitis media developed and required myringotomy. Active measures to combat abdominal distention were necessary, and intravenous fluids and whole blood were repeatedly administered. Her empyema was treated by a closed method of drainage. She made a complete recovery and was discharged in excellent condition after 34 days in the hospital. The second case of empyema entered the hospital January 13, 1941 on the sixth day of his illness and expired 43 hours after admission. He was desperately ill in coma and on physical examination revealed evidences of fluid in the left chest. This was aspirated and yielded a staphylococcus on culture. The sputum failed to reveal an organism. He received 37 grains of sulfathiazol during his hospital stay, intravenous fluids and whole blood were administered, a bilateral myringotomy was done, adrenalin and caffeine were required for circulatory collapse. No autopsy could be obtained.

This series also included one case of pneumococcus meningitis which recovered. In the 1940 series there were two cases of pneumococcus meningitis, one a type VII and one a type XVIII both of which died. Thus in these 489 cases of pneumonia in infants there were 3 specific meningitides with 1 recovery and 2 deaths. The 1941 case was a 6 month old colored infant who was admitted February 16, 1941 on the fifth day of her illness. She had had a running nose, cough, and fever prior to admission at which time she was dyspneic and toxic and showed Xray evidence of a diffuse bronchopneumonia. A pneumococcus type XXIII was isolated from the sputum and she received Type XXIII serum and 176.25 grains of sulfathiazol over a period of 8 days. She remained desperately ill during this period requiring continuous oxygen, intravenous fluids and blood and on the 9th day it was noted that the fontanelle was bulging. A spinal puncture was done yielding a purulent fluid which on culture revealed a pneumococcus type XXIII. Therapy was then changed to sulfapyridine and the infant received 551.25 grains in the succeeding 20 days. She made a complete recovery and left the hospital in good condition, April 16, two months after admission.

Fatalities — Table 5 shows the details of the four fatal cases. In two of these an autopsy was performed and revealed a focal and confluent bronchopneumonia. One of the others was the fatal case of empyema above described. The fourth case was a 7½ month old infant who entered the hospital in convulsions on the 6th day of her illness and died 9 hours later. She showed physical findings of a diffuse bronchopneumonia and a type XIX pneumococcus was isolated from the sputum. She received 11¼ grains sulfapyridine, a bilateral myringotomy was done, and intravenous whole blood was given. Spinal puncture yielded a normal fluid. The total dosage of sulfathiazol in the other three fatal cases was 31 grains, 50 grains, and 50 grains respectively. In none of these three could an organism be isolated from the sputum.

SUMMARY AND CONCLUSION

A series of 200 infants under one year of age with primary pneumonia was observed during January and February of 1941. These infants were treated with sulfathiazol in dosages of 1.5

grains per pound of body weight per day. It was noted that though the mortality was very low, only 2%, the response to the drug seemed less favorable than that noted in previous years, a larger amount of chemical and a longer period of treatment were required. This less favorable response was probably due to the fact that the cases observed included a large number of pneumonias which differed in their behavior from those of previous years and may have been due to an organism less susceptible to chemotherapy. In support of this theory is the comparatively poor success in isolating specific pneumococci from the sputum in this group as compared to the excellent record in 1939, and 1940. Also the clinical symptomatology with severe respiratory embarrassment and physical findings of a diffuse pneumonia with much wheezing was very different from the clinical picture of pneumococcus pneumonia we are accustomed to see. Though this evidence made us suspect a virus etiology we were unsuccessful in our efforts to isolate such an organism. Among the complications seen in this series was a Type XXIII pneumococcus meningitis which was treated first with specific serum and sulfathiazol on the 8th day of which therapy the meningitis was recognized, and then with sulfapyridine with recovery. Two cases of empyema were also seen, one of which recovered and one of which died. The lessened frequency of empyema since chemotherapy is noted. A resume of the four fatalities is included.

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DISCUSSION

Dr. G. L. Kaufman, Chicago: I feel that it is a privilege and an honor to be asked to discuss this paper. I think Dr. Greengard and his workers ought to be congratulated on the tremendous amount of work they have done. Our experience does not compare nor does our work compare with his.

In looking over our pneumonia cases for 1940 under one year of age, we find 67 cases. Of these 67, we had 26 deaths. Analyzing those deaths we find six were in the hospital less than 24 hours and twenty of them were in longer than one day. Seventeen of those 20 either came in with complications or congenital defects, such as glaucoma, congenital absence of the gallbladder, fibrocystic disease of the pancreas, etc., leaving us about three cases without complication or defect. We do not do routine typing of pneumonia.

Occasionally we will type, but we have found that we have not been successful.

Of our cases we had 46 on sulfapyridine, 8 on sulfathiazole and 3 on sulfanilamide. We find that with sulfapyridine the temperature comes down much faster than with sulfathiazol. I think Dr. Greengard noted that in his cases too. Our average for getting the temperature down with sulfapyridine was two days, while with sulfathiazol it was four days. We gave large doses as soon as the patient came in. Previously we gave too small doses, and we had recurrences or the patients came back with temperature or chemically fast organism, so we have given rather large doses. We give 2 grains per pound of body weight over two or three days and of all our cases we had only one who showed any drug reaction, with a rapid decline in the hemoglobin, but as soon as we stopped the drug and gave a transfusion the youngster immediately rallied and came back to normal.

We have seen many cases of patchy atelectasis and we feel this is a definite entity. We also feel that the drug has not had the same desirous effect on these cases as it has on the bronchopneumonia or lobar pneumonia.

All our cases are either put in the oxygen tent or given other sustaining remedy. We feel sure that with the chemotherapy plus oxygen the mortality among children has certainly declined.

Dr. Maurice L. Blatt, Chicago: I want to take this opportunity to congratulate ourselves, your Chairman and your Committee on Program for having selected Dr. Greengard to present this paper and Dr. Kaufman to discuss it. The paper is superior and deserving of more discussion than our limited time allows.

Dr. Greengard's favorable report shows what may be accomplished by teamwork. His associates, Dr. Raycraft and Dr. Frank, almost lived in the wards. Dr. Frank worked with little sleep, often without meals, and collapsed two weeks after he left the service; as the result of an infection of the lung picked up from these children, and he has not worked since. It is through such self-sacrifice, through fine nursing care, and by the use of serum and chemicals that these results were obtained.

You have had two series of cases from two different institutions in Chicago, with very different mortality rates. There is some difference in the type of patient, but the more active treatment in Dr. Greengard's cases must be considered the essential factor in his low mortality. The treatment at the Cook County Hospital is shock treatment. Every case under one year of age entering the hospital is given shock care until it is out of that shock. We know our cases have been neglected and are bad to begin with, so we are prepared to give them immediate and active treatment.

The cost of the treatment has been greater this last year than before. I was called to the Administrative Office recently to explain why the cost of dry ice

had risen from \$4 per month in the past to \$247 per month recently.

I have seen little toxicity from sulfathiazole. We have noticed that you cannot discontinue the use of sulfathiazole as early in the disease as you could sulfapyridine. The 24 per cent of otitis media which Dr. Greengard mentions is quite in keeping with the high incidence of otitis media seen throughout Chicago during this period. It has been more frequent this year and there have been more mastoid complications in the past year than in the one preceding.

The fact that Dr. Greengard was unable, with the assistance of the same laboratories and the same technicians, to obtain pneumococci from as many of these patients as in previous years would seem to indicate that the disease was not identical with the disease we have had in the previous year, but the results of treatment with sulfathiazole were probably as good or better than they would have been with sulfapyridine.

I again want to compliment the essayist on his work and the able manner in which it was presented.

Dr. Joseph Greengard, Chicago (in closing): We felt rather badly that we were unable to prove our point of a possible virus etiology. To us this seemed definitely a unique epidemic. These children began coming in about Christmas and then stopped abruptly around the first of March, and we felt we were dealing with some specific epidemic since the patients acted very sick but the condition actually seemed to be benign so far as the death rate was concerned. Isolation of a virus is a laborious process and I suppose we should not be too disappointed because it takes a well equipped and rich institution to do very much in the way of a virus study.

SEVERE SKIN REACTIONS RESULTING FROM THE ADMINISTRATION OF SULFAPYRIDINE

Sulfapyridine may cause severe toxic skin reactions, especially when administration of the drug is continuous or prolonged. Three young negroes, under treatment for gonorrheal urethritis, developed such lesions after receiving 34, 63 and 71 Gm., respectively, of sulfapyridine. In each case the eruption was generalized and varied in form from maculopapular to vesicular, pustular and bullous. Severe itching and desquamation occurred in each case. Associated, generalized discrete enlargement of the lymphnodes, likewise, was a finding common to each case. Evidence of renal damage was not observed. Leukocyte counts were elevated in 2 cases, but no appreciable elevation of the count observed in the third case. Erythrocyte counts and hemoglobin levels remained within normal levels. None of the patients showed any appreciable evidence, previous to the severe toxic skin reaction, of sensitivity to the drug.—*LeRoy W. La Towsky, M.D., Charles A. W. Uhle, M.D., and Frank Knight, M.D., Medical Times, March, 69: 120-124, 1941.*

ACUTE SUPPURATIVE EPIDIDYMITIS CAUSED BY PNEUMOCOCCUS

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AND

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It is extremely rare for the pneumococcus to be the infecting organism in epididymitis. For this reason and because we were interested in the pathogenesis of pneumococcal epididymitis, the following case is reported.

CASE REPORT: *History* — Mr. J. B., a sixty-six year-old white male was admitted to the service of Dr. N. J. Heckel at the Presbyterian Hospital, May 17, 1940. His only complaint was swelling of the scrotum to such size that it interfered with his walking.

At the age of 21 he had an acute gonorrheal urethritis, following which he developed a stricture of the membranous urethra. At about the age of 46, a spontaneous swelling of the scrotum had taken place, and from that time until shortly before the time of hospital admission his scrotum had been as large as a medium size apple, but had produced no symptoms. The patient had neglected treatment for this condition until 9 days previous to admission to the hospital at which time a No. 18 F. sound was passed by another physician, and the following day the right side of the scrotum again began to swell. Four days later when the mass had attained the size of a grape fruit, the patient sought medical attention for the relief of the mechanical inconvenience which it caused him.

The remaining past history and family history have no bearing on his present condition.

Physical Examination revealed a 66 year-old emaciated white male. The temperature was 100° F., the pulse rate, 90, the blood pressure 160 systolic and 60 diastolic. The head was negative except for the presence of many carious teeth. The chest examination was negative. The heart borders were within normal limits; however, there were frequent extrasystoles, and a systolic murmur at the apex transmitted to the anterior axillary line. Examination of the abdomen and extremities was negative. The scrotum was swollen to 17 cms. in length and 11 cms. in transverse diameter. The overlying skin was violaceous and edematous, and the underlying structures hard and irregular in consistency and outline. The mass was not tender, did not transilluminate, and no fluctuation was present. An enlarged, soft, symmetrical prostate with no accompanying tenderness or fixation was palpated rectally.

Laboratory Studies. Several catheterized specimens of urine showed an average of 180 white blood cells per c.mm. of uncentrifuged urine. The white blood count was 23,000. A blood wassermann was negative.

Course and Operation: Elevation of the scrotum and the application of hot packs gave no relief during

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the three days after admission to the hospital. On May 20, under general anesthesia a 9 cm. long incision was made in the right side of the scrotum. The spermatic cord was ligated at the external inguinal ring and a large tense tumor mass was shelled out and removed in one piece. The scrotum was then closed and a small penrose drain left in place. An incision into the tumor showed that it consisted of many cavities containing greenish, purulent material. The testis, epididymis, tunica vaginalis and vas were involved, and only with difficulty could they be identified. Smears and cultures were made from the pus and gram positive diplococci identified as pneumococci type 10 were found to be present in abundance. No other organism was present.

Subsequent course. The drain was removed on the third postoperative day and the patient had an uneventful, afebrile, postoperative course. He was discharged from the hospital on the ninth post-operative day.

Pathology: The gross specimen resected at operation weighed 208 grams and measured 15 cm. in length and 9.5 cms. in transverse diameter. Section through the tumor (Fig. 1.) showed the greater part of it to be made up of separate multilocular encapsulated cystic masses containing purulent material. The lower pole of the tumor contained the testis which had a somewhat



Figure 1: Cut section of a tumor removed from the scrotum. At the right side of the mass are the testis and body of the epididymis. The remainder of the mass consists of multilocular cavities containing pus.

softened cut surface but otherwise no abnormality. The tail of the epididymis contained necrotic material and pus similar to that in the cystic masses. The tunica vaginalis was somewhat thickened, but its visceral surface appeared normal, and it contained no hydrocele fluid or exudate.

Microscopic Section through the epididymis showed desquamation of the cylindrical epithe-

lium of the tubules and collections of cellular debris within their lumina. The interstitial tissues were intensely infiltrated with polymorphonuclear and lymphocytes, and minute focal abscesses were present. In some areas these had become confluent and had ruptured into the lumina of the tubules. Involvement of the tail of the epididymis was more advanced than that of the head. Section through the wall of a typical large cystic cavity showed it to be composed of scar tissue and circular masses of hyalinized fibrous tissue. A few giant cells were present.

COMMENT

In a review of the literature we were able to find seven cases of epididymitis or epididymo-orchitis in which the pneumococcus was identified as the only infecting organism.* Among 3606 patients with epididymitis treated at Bellevue Hospital, New York, Campbell encountered one case which occurred following pneumonia presumably by blood borne infection, but no mention is made of the identification of the pneumococcus. Two cases in which the pneumococcus was obtained in pure culture are reported by Landivar; one was a twenty month-old infant who had pneumonia eight days previous to the onset of the swelling and pain in the right testicle; the second patient a 28 year-old male, developed an epididymo-orchitis following drainage of a subscapular abscess. Jasonna had a three year-old patient in whom epididymitis occurred following a broncho-pneumonia complicated by empyema. In Landor and Sreenivasan's patient bilateral epididymo-orchitis developed after a pneumonia had subsided, and in Henrikson's patient a bilateral epididymitis followed a bronchitis. In these cases, epididymitis occurred as a secondary infection to a primary focus in the respiratory tract; or, as in one instance, secondary to a subscapular abscess. It is probable that the organism reached the epididymis as a metastatic infection carried by the blood stream.

In our patient, an acute inflammatory process was superimposed on a chronic process of about twenty years' duration. We found no evidence of primary infection in the lungs or respiratory tract and the patient could not recall any such infection in the twenty-five years previous. The fact that the acute swelling immediately followed the passage of a sound suggests the possibility

*Table 1.

TABLE 1
SUMMARY OF CASES OF EPIDIDYMITIS AND EPIDIDYMO-ORCHITIS CAUSED
BY THE PNEUMOCOCCUS

Author	Primary condition	Complications	Treatment of complication	Result
Landor & Sreenivasan	Bilateral lower lobar pneumonia 19 days previous	Bilateral epididymo-orchitis	Bilateral incision & drainage	Recovery
Landivar	Pneumonia 8 days previous	Right epididymitis	Aspiration followed by incision & drainage	Recovery
Landivar	Abscess below right scapula 30 days previous	Left epididymo-orchitis	Incision & drainage	Recovery
Jasonna	Broncho-pneumonia empyema, 3 weeks previous	Left epididymitis	Aspiration followed by incision & drainage	Recovery
Henricksen	Bronchitis 3 or 4 days previous	Bilateral epididymitis	Incision & drainage	Pyemia and death
Huard and Boutureau	Acute g.c. urethritis 4 years previous; trauma to testicle immediately preceding; left hydrocele 2 years' duration	Right epididymo-orchitis	Epididymotomy & orchidectomy	Recovery
Valerio	Acute gonorrheal urethritis, 14 years previous	Right epididymitis	Conservative management followed by incision & drainage	Recovery

that the organism was introduced into the urinary tract by way of the urethra, or else the trauma of this instrumentation had relighted an old infection. A similar case is reported by Huard and Boutureau. Their patient had a hydrocele of two years' duration, following trauma, incurred while horse-back riding. An epididymo-orchitis which contained a pure culture of pneumococcus developed. Valerio's patient had a negative past history, except for an acute anterior urethritis 14 years before developing an epididymitis. This patient similarly had no primary infection in the respiratory tract.

Treatment — Apparently from the knowledge gained from reports in the literature concerning patients with pneumococcal epididymitis and the experience with our own patient, the treatment of this condition, in contrast to the treatment of cases due to non-specific organism or the gonococcus, is incision and drainage. This method was used in six of the seven cases collected from the literature. In our own case, because of an extensive lesion containing many abscesses, complete removal of the inflammatory mass, which contained the testicle, was the only procedure possible. Although pneumococcal epididymitis is extremely rare, one must consider the possi-

bility of this condition when a patient does not respond to conservative treatment within a reasonable time, especially if there is a history of antecedent infection in the respiratory tract.

SUMMARY

1. A case of epididymitis caused by pneumococcus type 10 is reported.
2. It is likely that the infection ascended from the urethra since there is a definite history of instrumentation and no antecedent respiratory or pulmonary infection.
3. Seven cases of epididymitis or epididymo-orchitis caused by the pneumococcus are collected from the literature. In five of these there was an antecedent pneumonia or other acute primary infection outside the urinary tract.
4. The treatment of pneumococcal epididymitis or epididymo-orchitis in most cases is incision and drainage.
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THE DIAGNOSIS OF PULMONARY HEART DISEASE (COR PULMONALE)

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Although pulmonary disease has been known to produce heart disease for over four centuries, this relationship has never been given the attention it rightly deserves in medical literature and practice. It is true that this type of heart disease is among the varieties whose comparative incidence is low, yet it is none the less important and deserves emphasis. Ample historic evidence to support this relationship is not lacking. It is a proven clinical entity, yet in contrast to the other types of heart disease, this diagnosis is seldom made.

The most widely accepted explanation for the pathogenesis of this form of heart disease is, that extensive, long standing disease of the lung parenchyma, pulmonary vessels, or gross deformities of the thoracic cage may cause obstruction to the flow of blood through the pulmonary vessels, and as a result, a compensatory hypertension in the lesser circulation is set up. This pulmonary hypertension places a strain on the right ventricle, which, if long continued, leads to hypertrophy, dilatation and eventual failure of this chamber, by the process of fatigue rather than degenerative changes. This hypertension in the lesser circulation and its effect on the right ventricle is considered by some, comparable to hypertension in the systemic circulation, with its corresponding effect on the left ventricle. It should be remembered in this connection, that the texture of the right ventricle is more delicate than that of the left. The ratio of the thickness of the walls of the left and right ventricles is normally about 3:1.

The etiology of the underlying pulmonary disease may be widely varied, and is in no way specific. It must, however, be extensive enough to interfere with the free flow of blood through the pulmonary vascular bed, and be existent over a long period of time. Among the more common varieties are:

Pneumoconiosis (fibrosis due to the inhalation of dust) found principally associated with dusty occupations, examples of which are: Silicon dust, in granite, quartz, sand or asbestos workers; iron and steel dust, in polishers and grinders; stone dust, in cement and quarry workers; and to a lesser degree workers in dust originating from vegetable origin such as flour mills, cotton and woolen mills, tobacco factories, and so forth.

Pulmonary fibrosis due to any chronic inflammatory process in the lungs such as chronic bronchitis, bronchiectasis, fibroid tuberculosis.

Asthma and resulting emphysema (may also be associated with chronic bronchitis).

Pulmonary collapse, from any cause if extensive and long standing.

Gross deformities of the thoracic cage, sufficient to diminish the oxygenating capacity of the lungs (marked scoliosis or kyphosis).

Ayerza's disease (syphilitic pulmonary endarteritis).

Pick's disease, with extensive adhesions involving the mediastinum.

Emphysema from any cause either singly or in combination with other factors mentioned.

The symptoms are variable and depend somewhat on the nature of the underlying pulmonary disease, and the length of time it has been present. Dyspnoea, cough, cyanosis and weakness may have been present for long periods of time as the result of the pulmonary disease, and, as these same symptoms may represent early cardiac failure, it is frequently difficult to determine where the former leaves off and the latter begins. This difficulty is enhanced, because of the long chronic course of the pulmonary disease, and the usually slow insidious onset of the cardiac weakness and failure. It is this combination that frequently causes the transition period to be overlooked by patient and physician alike. As the case progresses, the above symptoms be-

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come increasingly severe and disproportionate, to what would be expected from the pulmonary aspect alone. Later, with the onset of frank right heart failure, symptoms resulting from enlargement of the liver, and edema of the lower extremities, become apparent.

The physical findings, too, may be confused with those originating from the pulmonary background. Cyanosis, moisture, rales in the lungs, and tachycardia, may have been present for some time previous to the onset of the heart involvement, but with the advent of cardiac failure, these findings become more marked. Clubbing of the fingers and toes are added features frequently seen. The heart may show enlargement to some degree, but as often as not, this is not discerned until relatively late. A pulmonary systolic murmur has been described as an inconstant finding. The signs referable to the heart when advanced failure occurs are, engorgement of the great veins of the neck, enlargement of the liver, edema of the lower extremities, and orthopnea. Elevation of the red blood count and hemoglobin, to levels far above normal, are common findings.

The electrocardiogram may show right axis deviation. Enlargement of the right ventricle may be difficult to show with the X-Ray, as this chamber lies anterior, in relationship to the other chambers, and any increase in its size extends downward, instead of to the right as might be expected, presenting the pattern of the so-called "drop heart." Bulging of the right border of the heart, in the P.-A. view may be seen, if the process has advanced to the stage where the right auricle is involved. Enlargement of the pulmonary artery can be discerned, by the finding of a prominent pulmonary conus on the left cardiac border. In the later stages the heart usually shows some enlargement over all, but not infrequently the enlargement is not characteristic of any particular pattern. These findings are best demonstrated with the fluoroscope by one thoroughly familiar with this procedure.

The course of this type of heart disease is variable, but in general follows the course of the underlying pathology. As the latter progresses, which it usually does, more and more strain is thrown on the lesser circulation and right heart, until failure finally occurs. During the course of the disease, the reserve of the right heart is

diminished, and, as would be expected, becomes less able to withstand any added burden that might be imposed upon it. A common example of this, is acute respiratory infections, that are prone to occur in these patients, especially during the winter months. It is common for them to experience cardiac decompensation during the course of these respiratory infections and again regain compensation as soon as the infection subsides. Pneumonias, however, impose a real hardship on these already damaged hearts, which but few are able to withstand. The mortality rate of pneumonia patients with Cor Pulmonale is exceedingly high.

The requisites for the diagnosis of Cor Pulmonale, as laid down in the "Criteria for the Diagnosis of Heart Disease," sponsored by the American Heart Association, are as follows:

- (1) The presence of specified pulmonary disease.
- (2) Evidence of cardiac insufficiency with marked cyanosis.
- (3) Evidence of enlargement of the right ventricle.

Although these criteria are well defined, difficulties in diagnosis may arise, especially in cases where the signs and symptoms are difficult to distinguish, from those originating from the pulmonary disease. In this connection, White, in his text, makes the following statement: "The right ventricle may be slightly hypertrophied in the milder cases, adding little to the heart weight, escaping observation, and passing notice, sometimes even at postmortem examination." This is especially true in the early stages, the so-called transition period, where many of the identifying characteristics are lacking. In order to make a diagnosis that is timely, one should consider all patients in this pulmonary category, as potential candidates for this type of heart disease, if they live long enough. The onset of disproportionate cyanosis, dyspnoea, tachycardia and weakness should arouse suspicion that the heart is probably responsible for these additional findings. If now, or when later, additional clinical or laboratory evidence appears, such as, right axis deviation in the electrocardiogram, elevation of the red blood count and hemoglobin to levels above normal, clubbing of the fingers or toes, and evidence in the X-Ray

of right heart enlargement, the diagnostic problem becomes increasingly less difficult. Occasionally one is confronted with frank cardiac failure in these patients, before the usual typical findings make their appearance. This may happen if the cardiac reserve is sufficiently lowered, and an added burden, such as acute respiratory infection is contracted. In this case, in the absence of other etiological factors, the diagnosis is practically assured. Other types of heart disease which produce a clinical picture similar in some respects to, but not classified as Cor Pulmonale, include certain types of congenital heart disease, pulmonary stenosis, and mitral stenosis. In Cor Pulmonale, as in all other types of heart disease, failure and decompensation is the usual last chapter.

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THE DIAGNOSIS AND TREATMENT OF DIAPHRAGMATIC HERNIA IN CHILDREN

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Diaphragmatic hernia in children has been recognized clinically with increasing frequency in recent years. Infants at birth or shortly thereafter who vomit, become dyspneic or cyanotic, especially at the time of feeding, should be suspected of having a congenital type of diaphragmatic defect. If symptoms do not manifest themselves until the age of one year or older, they are more likely to be those of bowel obstruction, intermittent perhaps, with associated pain and vomiting. It is not the purpose of this paper to enter into a differential diagnosis of these symptoms, but instead to emphasize the importance of associating them with diaphragmatic hernia.

Why there should be the difference in time in the onset of symptoms is readily understood when the physiology of the thoraco-abdominal relationship is recalled. Those infants having symptoms from birth have their hernias developed to the point of producing disturbances in the cardiorespiratory mechanism at once. Those in which there is a delayed onset may have just the same type of hernia once it is discovered, but it must be assumed that in the beginning there was only an embryological defect in the diaphragm. Just as in inguinal hernia, a defect may be congenital but the factors which in life increase intra-abdominal pressure, such as crying, coughing, straining, etc., are necessary to the actual production of hernia. The thorax exercises an even more powerful force and that is the negative pressure which it develops when respirations are begun in the new-born. It is constantly present, temporarily increased with each inspiration, and in the presence of a diaphragmatic defect it is very potent in its influence on hernia formation.

Congenital diaphragmatic hernia constitutes a serious menace to the life of the new-born. Death may be due to mechanical disturbance of the cardiorespiratory mechanism, to aspiration of stomach contents into the tracheobronchial tree with subsequent development of an

Indiana, Kentucky, New Jersey, Oregon and Washington are on the roll of states which have laws calling for a specific examination of all school personnel in contact with children. Other states vary widely in their programs but in most states there are some communities offering voluntary tuberculin tests or local board rulings requiring specific examinations for tuberculosis of applicants for teaching positions. Report of Nat'l. Tuber. Assn., Sept. 1941.

Read before the Section on Pediatrics of the Illinois State Medical Society, April 20, 1941, Chicago.

aspiration type of pneumonitis, or to bowel obstruction. Whereas there are no large series of necropsies available to indicate the incidence of diaphragmatic hernia as a cause of death, it is interesting to note that Lissowetzky,¹ in the course of 220 routine autopsies on infants, found three congenital diaphragmatic hernias, or an incidence of 1.8 per cent. The hernia was the cause of death in each instance.

Harrington,² from his exhaustive study of the condition, has classified diaphragmatic hernia into two groups: "The nontraumatic variety may be congenital or acquired. If congenital, the hernia is attributable to embryologic deficiency, and does not have a hernial sac. The most common sites of a congenital hernia, in the probable order of frequency of occurrence are: (1) Through the hiatus pleuroperitonealis (foramen of Bochdalek); (2) through the esophageal hiatus; (3) through an anterior substernal opening (foramen of Morgagni) (space of Larrey), and (4) through the gap left by partial absence of the diaphragm, a gap which is usually situated in the posterior portion of the muscle.

"If the hernia is acquired after birth, the sites of occurrence are (1) through the esophageal hiatus, a type which has a hernial sac, (2) through the region of fusion of the anlage of the diaphragm, and (3) at sites named under the congenital type in the foregoing paragraph.

"Traumatic diaphragmatic hernia may be caused by direct or indirect injury, or by inflammatory necrosis of the diaphragm as may occur in subphrenic abscess. In cases of indirect injury of the diaphragm, the hernia may occur at any point, including those of embryonic fusion, but the most common sites are the dome and posterior half of the left diaphragm."

The diagnosis of diaphragmatic hernia is based on the recognition of the previously described symptomatology as being associated with defects in the diaphragm, and once such a situation has been suspected, proof of its existence should be sought for by means of roentgenologic study. Under the fluoroscope it is possible to recognize in most instances whether or not there is present an eventration of the diaphragm. This is a non-surgical condition and is characterized by a marked elevation and thinning of the diaphragm on the affected side, usually the left,

due to insufficiency of the muscle from previous disease or to injury of the phrenic nerve. The thin leaf of diaphragm forms a sac-like concavity into which stomach or colon may be displaced so as to resemble intrathoracic herniation. Eventration may produce dyspnea but is a non-fatal condition.

With the aid of a barium enema and barium by mouth, it is possible to determine the type of herniation present and the viscera involved. Harrington states that on this basis (the viscera involved) it is possible to divide hernias clinically into two main classes. In the first the stomach is the only abdominal viscus incorporated in the hernia; the hernia usually occurs through the esophageal hiatus. In the second class, the intestines with or without the stomach and other abdominal viscera are included in the hernia. Such a hernia is usually of traumatic origin and is caused by laceration of the normal diaphragm. It also may be of congenital origin and may result from structural deficiency of the diaphragm. It is not possible always to be sure of the size of the defect in the diaphragm, however, except at operation.

There are in addition certain other physical signs which may be associated with the presence of diaphragmatic hernia. There may be unusual tympany, as well as peristaltic tinkling heard rather high in the thorax. The heart sounds may be audible more clearly in the opposite chest and the apex beat may also be displaced. These in a child whose abdomen is more than normally flat strongly suggest the evisceration of abdominal contents into the thorax.

The treatment of diaphragmatic hernia begins with the acute awareness of the symptomatology which leads to early diagnosis. Since diaphragmatic hernia is primarily a mechanical derangement, surgical correction and repair of the abnormal aperture in the diaphragm is the only treatment which offers permanent cure with alleviation of symptoms.

The principles governing the treatment of diaphragmatic hernia in children are somewhat different from those which pertain to adults. Congenital hernia in the new-born, I believe, comes within the realm of surgical emergencies, with certain reservations. Those infants who have a hernia in which primarily the stomach is

the viscus which has been displaced through an abnormal esophageal hiatus may be treated medically until they are several months to a year old, provided they are being sufficiently nourished. However, if, due to vomiting, these infants are not being sufficiently nourished and show no gain in weight, surgical repair of the hernia should be done. It is recognized that many of these hernias are small enough so as to produce no symptoms, remaining only as enlarged esophageal hiatal openings in many instances, until some increase in intra-abdominal pressure either enlarges an originally small lesion or produces for the first time actual hernia. This usually occurs in later life.

As Hartzell has shown³ in his analysis of 68 operated diaphragmatic hernias in children ten years of age and under, the mortality from the operative procedure is highest in the first year of life. Because of this, there is a tendency to postpone operation, but this is justifiable in the new-born only under the above described conditions. The majority of hernias in the new-born are of the type in which the intestines are the primary constituents of displaced viscera. These in my opinion are surgical emergencies and should be operated upon by a surgeon familiar with such disorders and as soon as sufficient fluids have been given and operative facilities arranged for.

The following case history illustrates what may happen when surgery is postponed. Infant T. J. was admitted to the Presbyterian Hospital on November 1, 1938, fourteen days after normal delivery. The birth weight was 7 pounds 8½ ounces, and on admission to the hospital the weight was 7 pounds 2 ounces. On the fourth day after birth the child was noticed to have labored respirations before the 2 A.M. feeding. During the next two days it was noticed that if the infant were placed or held with his right side dependent, feeding and respiration were quite normal. Roentgenologic studies demonstrated a defect in the right diaphragm with herniation of loops of small bowel into the thorax. The heart and mediastinum were displaced to the left. The stomach was below the diaphragm. Surgical repair was postponed, with the idea of improving nutrition. The infant gained about an ounce per day for ten days, ceased to gain steadily thereafter, and died thirty-eight days after birth from aspiration pneumonia. At necropsy there was

found a slit-like defect in the right posterior lateral diaphragm 32 mm. long and from 4 mm. to 20 mm. wide. There was no sac. The lesson was obvious: that this hernia could have been simply reduced and repaired, and in all probability the infant's life saved.

The traumatic hernias in children should be treated in principle like those in adults. Operation should be postponed until the dangerous effects of the trauma have been cared for. The hernia may be treated as an elective procedure but not delayed too long. Adhesions which may form must not be allowed to become firm. Obstructive symptoms, even perforation of a viscus due to "traumatic erosion" (Harrington) might supervene, so making delay dangerous. A further important reason is that in infants and children during development, if the abdominal viscera for the most part occupy one or the other pleural spaces or the mediastinum, the size of the abdominal cavity remains so diminished that it will accommodate the replaced viscera with considerable difficulty after the repair is made.

It is important that the principles involved in the surgery of diaphragmatic hernia children be emphasized: First, with certain exceptions hernias should be operated upon as soon as possible after diagnosis; second, the so-called true hernias, or those with a sac such as the esophageal hiatus type, are in reality sliding hernias. To repair these successfully it is necessary that the continuity of the sac be interrupted.

Third, ethylene anesthesia administered through a tight fitting mask has been quite satisfactory in our hands. We have not had to employ an intratracheal tube. Except in the esophageal hiatus hernias the lung on the affected side has been collapsed and accommodation to breathing with a reduced pulmonary volume has already been made.

Fourth, preliminary crushing of the phrenic nerve to the affected diaphragm is a necessary adjunct to the surgical repair. For those who advocate the thoracic approach, this may be done at the time of repair.

Fifth, I prefer the abdominal approach as advocated by Harrington in the repair of diaphragmatic hernias in children for several reasons: (a) it may be combined with a thoracic ex-

posure, as would have been necessary in the instance of the child whose history has been given; (b) the abdominal approach in the infant or child affords easy access to the diaphragm under ordinary circumstances; (c) it avoids the danger of respiratory difficulty which may be encountered in young infants whose chests are opened; (d) it allows for the proper reduction of the viscera as they are replaced in the abdomen with less danger of injury; (e) furthermore, it circumvents a difficulty which has been alluded to in a previous paragraph. Even with temporary phrenic paralysis, in children whose hernias have gone untreated long enough to allow for the development of a contracted abdominal cavity, forceful replacement of the viscera in the smaller than normal cavity will produce a pressure effect on the unaffected lung through the liver. With the lungs on the affected side collapsed and expected to expand slowly, anoxemia may supervene and lead to death. This has certainly been the mechanism responsible in cases which I have both witnessed and have seen reported in the literature. In the abdominal approach, after the defect in the diaphragm has been repaired, it is possible for the anesthetist to change from light ethylene anesthesia to drop ether. Relaxation may be obtained which together with manual stretching of the abdominal wall, especially the rectus muscles, will allow for orderly, easy replacement of the viscera and closure without tension.

Sixth, finally these operated children are placed in an oxygen tent and allowed to remain there until their condition is considered satisfactory.

Seventh, they are given fluid, including blood, by intravenous administration begun before the surgical procedure is started.

I feel that if these principles are adhered to, the mortality of 32 per cent as reported by Hartzell in 68 operated cases in children will continue to be reduced.

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DISCUSSION

Dr. Edwin M. Miller, Chicago: Dr. Dorsey has well covered the main points in connection with the problem of diaphragmatic hernia in infants and children. In the type of hernia which we most commonly see, i.e. through the pleuroperitoneal canal on the left side, the diagnosis is often extremely easy, and the treatment likewise may be attended with little difficulty. The prominent chest over which bowel sounds are heard, the area of cardiac dullness pushed to the right, and the flat abdomen, taken together should at once make the diagnosis of diaphragmatic hernia almost certain. When, however, the x-ray film is made and the air containing loops of bowel are seen in this abnormal position, the situation is perfectly clear.

In this case (a boy age 2½ months) when a little barium was given by mouth the stomach could be seen in its normal place, the barium then passed through a defect in the left diaphragm and quickly filled the many loops of small bowel and colon which almost completely occupied the left chest.

The successful treatment in this case was accomplished by means of a combined thoracic and abdominal approach. With the left hand in the abdomen displacing the spleen, the loops of bowel were returned with the right hand through this small triangular shaped defect with very little trouble, and the repair of the defect was readily made with a running catgut suture. The postoperative course was amazingly uneventful, and the x-ray made two and a half years later shows the smooth curve of the diaphragm on the left side.

The important thing to remember is that many of these cases can be diagnosed very easily and if seen early enough and operated on without delay, most of them should live.

Dr. S. C. Henn, Chicago: I had a baby some time ago in whom we diagnosed a diaphragmatic hernia. He was making a good gain in weight and I was getting quite enthusiastic about the way he was getting along, but Doctor Brennemann told me to watch out because these cases are so tricky. The parents were good friends of Harrington's at Mayo's and he agreed that the child was doing well and he decided not to operate. The patient was about a year and a half old. He had a restless spell one night and they picked him up and carried him around to quiet him. The next morning he was irritable; the mother took him to the window where he pointed at something, and within fifteen minutes he died.

We should remember that even if these patients are getting along well, they should not be carried along medically any longer than absolutely necessary; they should be turned over to the surgeon as early as possible.

Dr. E. T. McEnery, Chicago: I feel that there are many cases with a diaphragmatic weakness, as Dr. Dorsey mentioned, in whom a sudden accident may occur at a later date, as Dr. Henn has just described.

I saw a child, age 10 months, with a history of repeated attacks of vomiting, who was in shock from what was diagnosed a spontaneous pneumothorax. The child was sent to the hospital and placed in an oxygen tent. This patient died a short while after reaching the institution. A post-mortem x-ray showed a diaphragmatic hernia with stomach and intestine present in the left thoracic cavity. Even though these cases simulate a pyloric stenosis an x-ray may help to rule out a diaphragmatic hernia.

Dr. John M. Dorsey, Chicago (in closing): I wish to thank the Doctors for their discussions, and I also wish to emphasize the point that diaphragmatic hernias in children are surgical emergencies.

POSTMENOPAUSAL BLEEDING

CLYDE J. GEIGER, M.D.

CHICAGO

The menopause is said to occur when the process of ovulation ceases and this is accompanied by sterility and amenorrhea. This is followed by atrophic changes in the internal and external genital organs. Bleeding which occurs after the climateric has been established, is considered pathological in origin. This condition usually depends upon local atrophic changes incident to the menopause or follows the development of neoplastic disease either benign or malignant.

A study of the causes of postmenopausal bleeding at the Cook County Hospital gynecological tumor clinic was undertaken. There were 395 cases in this group admitted to the clinic from January 1, 1933 to July 1, 1940. This subject was chosen because we have frequently seen bleeding after the menopause improperly interpreted; therefore, we decided to determine the responsible lesion in a series of cases from our clinic. Thus we would be better able to judge the significance of postclimateric bleeding.

The various lesions responsible for postmenopausal bleeding in our cases can be noted in Table I.

The Malignant Lesions: The most frequent lesion which we encountered in this group, as seen in Table II, was carcinoma of the cervix. This occurred in 265 cases, an incidence of 67.0 per cent. 238 of these lesions originated on the vaginal portion of the cervix and 23 were from

Table I.

Incidence of Various Lesions Responsible for Postmenopausal Bleeding.

Pathological Lesion	Number of cases	Per cent
Carcinoma of the Cervix	265	67.0
Carcinoma of the corpus	34	8.8
Cervical polyps	29	7.3
Benign	27 — 6.8%	
Malignant	2 — 0.5%	
Fibromyomata	13	3.3
Benign	11 — 2.8%	
Malignant Degeneration	2 — 0.5%	
Cervical Erosions	12	3.0
Senile Vaginitis	11	2.8
Ovarian Malignancies	10	2.5
Carcinoma of the Vulva	6	1.5
Endometrial Hyperplasia	5	1.2
Undetermined Bleeding	5	1.2
Endometrial Polyps	2	0.5
Urethral Caruncle	1	0.3
Carcinoma of the Vagina	1	0.3
Carcinoma of the Bladder	1	0.3
Total	395	100.0

Table II.

Incidence of Malignant Lesions Responsible for Postmenopausal Bleeding.

Pathological Lesion	Number of cases	Per cent
Carcinoma of the Cervix	265	67.0
Carcinoma of the Corpus	34	8.8
Ovarian Malignancies	10	2.5
Carcinoma of the Vulva	6	1.5
Malignant degeneration of Myomata	2	0.5
Malignant Cervical Polyps	2	0.5
Carcinoma of the Vagina	1	0.3
Carcinoma of the Bladder	1	0.3
Total	321	81.3

the cervical canal. In this group there were 5 patients who had had a previous supra-cervical hysterectomy and later developed a carcinoma in the stump. In two of these cases the lesion began in the remaining canal and the other 3 originated on the external portion of the cervix. As to the microscopic findings, there were 13 cases of adenocarcinoma, 6 cases of adenocarcinoid and 246 cases of squamous cell carcinoma.

Carcinoma of the corpus was found in 34 cases, an incidence of 8.8 per cent. The microscopic diagnosis was adenocarcinoma in 32 cases, and adenocarcinoid in 2 cases. The combined incidence of cancer of the cervix and body of the uterus for the whole series was 75.8 per cent.

There were 10 cases of carcinoma of the ovary with an incidence of 2.5 per cent. Most of these patients were referred from the hospital for follow-up and radiation therapy. The pathological report was adenocarcinoma in 6 cases, and papillary cystadenocarcinoma in 4 cases.

From the department of obstetrics and gynecology, Loyola University School of Medicine and the Cook County Hospital gynecological tumor clinic.

Read before Section on Obstetrics and Gynecology of Illinois State Medical Society, Chicago, May 21, 1941.

Of the 6 cases of carcinoma of the vulva, 5 originated on the labia and one on the clitoris, an incidence of 1.5 per cent. The microscopic finding was squamous cell carcinoma in all the cases. There were 2 patients with fibromyomata of the uterus in which sarcomatous changes had occurred, and incidence of 0.5 per cent.

Two of the 29 cervical polyps had undergone malignant degeneration, an incidence of 0.5 per cent. This is unusual because these growths are usually benign. One of these cases was referred to the clinic, diagnosed as a malignant polyp by a competent pathologist. The pathological diagnosis was adenocarcinoma in one case and squamous cell carcinoma in the other.

The one case of primary carcinoma of the vagina gives an incidence of 0.3 per cent. This tumor, on microscopic examination, was an anaplastic undifferentiated squamous cell carcinoma. There was also one case of carcinoma of the bladder, an incidence of 0.3 per cent. This was a transitional cell carcinoma.

The total number of cases of malignancy in our series was 321, or 81.3 per cent. This incidence is somewhat higher than the average in the literature, but this is probably due to the fact that we have a cancer clinic. This was also true in Ducuing's and in Albenque's series, whose cases were from cancer centers. The high incidence of malignancy in patients with postmenopausal bleeding, as noted by various authors, emphasized the importance of a careful and complete study for the causative factor. It is only by the early recognition and treatment of malignancy that one can hope to cure this disease. (See Table III).

The Benign Lesions: In the benign group, which comprised 73 cases or 18.7 per cent, cervical polyp was the most common cause of postmenopausal bleeding. (See Table IV). There were 27 polyps, an incidence of 6.8 per cent. If the two malignant polyps of the cervix are added to the above, the incidence for all the polyps would be 7.3 per cent.

Cervical erosions (12 cases) were quite frequent, an incidence of 3.0 per cent. In some of these cases, there was an associated prolapse of the uterus. These lesions were all carefully checked by biopsy. The myomata (11 cases) were chiefly of the submucous type and a few were pedunculated and presented in the cervical canal, an incidence of 2.8 per cent. In 5 cases

Table III. Incidence of Postmenopausal Bleeding due to Malignancy.			
Author	Year	Per cent	
Ducuing — work done at cancer center ..	1932	....	92.0
Albenque — work done at cancer center ..	1932	....	91.0
Kanter & Klawans	1932	....	68.4
Brown	1933	....	66.8
Schulze	1933	....	68.0
Geist & Matus	1933	....	57.5
Norris	1935	....	52.9
TeLinde	1937	....	53.3
Geiger	1941	....	81.3

Table IV. Incidence of Benign Lesions Responsible for Postmenopausal Bleeding.			
Pathological Lesion	Number of cases	Per cent	
Cervical Polyps	27	....	6.8
Cervical Erosions	12	....	3.0
Fibromyomata	11	....	2.8
Senile Vaginitis	11	....	2.8
Endometrial Hyperplasia	5	....	1.2
Undetermined Bleeding	5	....	1.2
Endometrial Polyps	2	....	0.5
Urethral Caruncle	1	....	0.3
Total	74	....	18.7

Table V. Age When First Admitted to Tumor Clinic.		
Age Group	Cases	
30 to 35	1	
36 to 40	10	
41 to 45	16	
46 to 50	80	
51 to 55	115	
56 to 60	75	
61 to 65	44	
66 to 70	34	
71 to 75	13	
76 to 80	4	
Unknown	3	
Total	395	

the etiology of the bleeding was undetermined, an incidence of 1.2 per cent. The pelvic examination was negative as was also a diagnostic dilatation and curettage. Senile vaginitis (11 Cases) with an incidence of 2.8 per cent, hyperplasia of the endometrium (5 cases) with an incidence of 1.2 per cent, endometrial polyp (2 cases) with an incidence of 0.5 per cent, and urethral caruncle (1 case) with an incidence of 0.3 per cent were the other benign lesions causing postmenopausal bleeding. (See Table IV).

Age: The age incidence in this series, on admittance to the clinic, varied from 30 - 80 years. The greatest number of patients were between 51 - 55 years, which was about 30 per cent of the total cases. The age groups from 46 - 50 years, and from 56 - 60 years were quite similar. There was a rapid decline in cases below 46 and over 70 years. (See Table V).

Age of Menopause: We found that the menopause occurred in one case at 30 years, while the latest cessation took place at 58 years. The greatest number (178) was in the group between 46 - 50 years. Below 41 and over 55 years the decline was very rapid. There were 11 patients that had had a surgical menopause. In 8 cases the menopausal age was not determined. These patients were usually quite elderly. (See Table VI).

As to parity, 44 were nulliparous and 351 were multiparous. There were 298 white patients and 97 colored.

The type of bleeding was classified as follows: (1) Bloody discharge — present in 34 cases. (2) Spotting — present in 54 cases. (3) Contact or intermittent bleeding — present in 293 cases. (4) Severe bleeding (hemorrhage) — present in 14 cases. About 75 per cent of the patients were included in the third group. (See Table VII).

The duration of the bleeding before seeking medical advice varied from 24 hours to over 2 years, but the greatest number came to the clinic within 1 - 6 months. Within the first year 350 of the 395 cases had been examined. (See Table VIII).

Diagnosis: In our series there were 347 biopsies taken from the vulva, vagina, vaginal portion of the cervix, and cervical canal. In 15 cases the biopsy was repeated once and in 3 cases it was repeated twice in order to establish a proper diagnosis. In 50 of these patients a diagnostic dilatation and curettage was done. 13 cases required an abdominal laparotomy for obtaining a correct diagnosis. In the one case of carcinoma of the bladder a cystoscopic examination with removal of tissue for biopsy was necessary. (See Table IX).

The diagnosis of the various pathological conditions which cause postclimateric bleeding is usually not difficult. A careful bimanual pelvic examination should be done followed by a speculum examination of the vagina and cervix. This will reveal the source of bleeding in many instances. Painting of the cervix with gram's iodine solution (Schiller test), followed by biopsy, may be indicated. Any lesion on the vulva, vagina, or cervix which bleeds should be biopsied and subjected to careful microscopic study. If the cause of the bleeding cannot be

Table VI.

Age Incidence of the Menopause	
Age Group	Cases
30	1
32	2
34	1
35	10
36 to 40	22
41 to 45	82
46 to 50	178
51 to 55	70
56	7
57	2
58	1
Undetermined	8
Surgical Menopause	11
Total	395

Table VII.

Type of Postmenopausal Bleeding		
Type	Character of Bleeding	Cases
I	Discharge with blood	34
II	Spotting	54
III	Contact, intermittent bleeding	293
IV	Severe bleeding or hemorrhage	14
Total		395

Table VIII.

Duration of Bleeding before admission to Clinic	
Duration of Bleeding	Cases
Less than 1 week — (1 case — 24 hours)	16
1 to 4 weeks	58
1 to 6 months	169
7 to 12 months	107
13 to 18 months	20
19 to 24 months	18
More than 2 years	7
Total	395

Table IX.

Incidence of various Diagnostic Procedures.	
Diagnostic Procedure	Cases
Biopsy forcep	347
In 15 cases — Biopsy repeated once	
In 3 cases — Biopsy repeated twice	
Dilatation and curettage	50
Abdominal laparotomy	13
Cystoscopy — (Carcinoma of the bladder)	1

determined by the above procedure, a diagnostic dilatation and curettage followed by careful microscopic examination is indicated. While the patient is under the anaesthesia, careful bimanual palpation of the ovaries should be done. In certain cases such as ovarian tumors, an exploratory laparotomy may be indicated. Patients in whom the cause of bleeding cannot be determined, even by careful investigation, should be kept under observation.

SUMMARY

The various etiological factors responsible for post-menopausal bleeding in 395 cases from the Cook County Hospital gynecological tumor clinic have been analyzed. In 81.3 per cent the

pathological lesions were malignant and in 18.7 per cent benign. Carcinoma of the cervix was the most common cause of bleeding after the menopause, occurring with an incidence of 67.0 per cent. Carcinoma of the corpus was present in 8.8 per cent of the cases, giving a total incidence of over 75 per cent for cancer of the uterus. Malignancy of the ovary, vulva, vagina, cervical polyps, fibromyomata and bladder accounted for the remainder, or about 6 per cent. Since postclimacteric bleeding in the majority of instances is due to a malignant lesion, a careful investigation of the generative tract should be carried out in all cases. Biopsy, diagnostic dilatation and curettage with examination of the adnexa under anaesthesia, and even an occasional exploratory laparotomy in cases of suspected ovarian tumors may be resorted to. A careful microscopic examination of all tissue removed is indicated. Over one-third of the benign lesions in this series were cervical polyps. Erosions of the cervix, fibromyomata and senile vaginitis were found quite frequently. The age when first seen in the clinic, the age at the menopause, the type and duration of bleeding have been analyzed. In this group, 345 biopsies were taken, 50 patients were subjected to a dilatation and curettage, and in 13 cases abdominal laparotomy was performed in order to establish a proper diagnosis.

104 South Michigan.

DISCUSSION

Dr. F. J. Stewart, Keweenaw: Dr. Geiger's very exhaustive paper leaves very little for discussion. We know in the vast majority of these cases as reported by him and other available authors that most cases are malignant. My reaction to this is that we all have a lot of missionary work to do in the field.

The matter of diagnosis is simply arrived at in most cases, but the matter of prevention I believe is a wide field of endeavor. I think we still must do a lot of work postpartum and urge our patients to return for examinations. I am sure you will agree with me that we see a lot of women who take leukorrhea as a matter of incidental consequence to delivery. Since most of these women have had children and since many of these cases show cervical erosions, I think our treatment should be primarily devoted towards prophylaxis. Cervical cautery is a simple procedure. The Schiller test to determine the presence of tissue that should be investigated by biopsy, diagnostic curettage are all methods at our disposal.

This field of postclimacteric bleeding is, as Dr.

Geiger pointed out, a most important one and I think probably we should not wait until the climacteric to investigate many of them. We can pick up many in our office examinations in women who come in for some other condition. Complete physical examination, including pelvic and speculum examinations, is most important as we may in this way pick up some cases where they are not showing symptoms. In that way we may save many women who otherwise might die earlier if the diagnosis were not made.

Dr. William Serbin, Chicago: These statistics are very interesting. Dr. Geiger reported on a total of 395 cases, which included 27 benign polyps and 2 malignant ones, or 7.3 per cent of the total series showed polyps; this is higher than my statistics. Irrespective of what he did with his patients, any manner of treatment he may have adopted is not important now, but the important thing is that he looked and he found 29 polyps in that series and he was rewarded in his findings, since two were malignant. That emphasizes the point that I wanted to make in my own paper.

Dr. Clyde Geiger, Chicago (in closing): I do not have much more to say in regard to what Dr. Serbin said. I mentioned that one of these cases of malignant polyp was a case that was sent to us through the clinic for treatment. It had been diagnosed elsewhere, which probably raised the incidence a little higher.

As to Dr. Barrett's discussion, he talked about treatment which was not entered into this paper.

One thing that I would like to emphasize again is that since in all series, carcinoma of the cervix is a very common cause of postmenopausal bleeding and since it is so easy to obtain tissue by the use of biopsy forceps, this method should be employed more frequently.

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TUBERCULOSIS: ITS TWO PHASES OF DEVELOPMENT

CHESTER A. STEWART, M.D., Ph.D.

Studies made chiefly during the past two decades have shown that an introductory series of important changes precedes the development of phthisis, bone and joint tuberculosis and other well known clinical varieties of the disease. These preliminary changes are currently interpreted as comprising the broad primary phase of the development of tuberculosis, whereas the subsequent events which collectively produce the picture of the many clinically serious forms of tuberculosis that occur in man are now classed as representing the second phase of the development of the disease. As a rule these two developmental stages of tuberculosis are separated by relatively long periods of apparent quiescence.

Animal experiments have demonstrated the remarkable capacity possessed by tubercle bacilli to scatter widely throughout the body shortly after the first infection occurs. These observations indicate that the pathology produced by a primary tuberculous infection usually extends far beyond the limits ordinarily assigned to the primary complex, namely the lesions at the site of primary focus and in the regionally related lymph nodes.

Within a few hours after the initial infection is laid down the polymorphonuclear leucocytes begin to focalize the migrating bacilli at the various points to which they have wandered. In this manner the permanent locations of the numerous lesions which comprise the frame work of the primary complex are determined. The neutrophils are the first defense mechanism the body uses in combatting the initial infection.

The second defense mechanism comes into action when the new foci are one or two days old. The agent used at this time is the lymphocyte. These cells collect around the primary foci of disease in large numbers, and gradually become converted with the epithelioid cells of the tubercle. A few monocytes also appear in these areas but their role in the production of

tubercles probably is of minor importance. Subsequently the tubercles increase slowly in size and reach histologic maturity in the third or fourth post-infection week.

Throughout this initial period, during which the primary tubercles are maturing, the patient manifests no evidence of disease and has a negative reaction to tuberculin. Proof that infection has taken place has been obtained in a few instances during this initial symptomless stage of the disease by recovering tubercle bacilli from the stomach.

About the time the primary lesions have attained histologic maturity the primarily infected patient develops a transitory fever, and an accelerated sedimentation rate. The initial pre-allergic fever presents no characteristics suggestive of tuberculosis.

A few days after the initial fever makes its appearance, the patient acquires cutaneous sensitivity to tuberculin. This highly specific sensitivity persists for years, and its presence proves the existence of tuberculosis. In fully seventy-five per cent of the patients with tuberculosis in its primary phase of development a positive cutaneous test constitutes the sole evidence of the presence of the disease. These patients present no symptoms suggestive of tuberculosis, and their clinical and X-ray studies fail to disclose the tuberculous lesions which are responsible for their positive reactions to tuberculo-protein.

Information relative to the changes that characterize the primary phase of the development of tuberculosis through the period that post-dates the acquisition of sensitivity to tuberculin is provided by follow-up studies on that minority of patients with primary tuberculous lesions whose size and location make the areas of disease suitable for visualization on X-ray films. In these patients the roentgenographically demonstrable primary pulmonary lesions appear as pneumonic infiltrations on chest plates. These consolidations may be small or they may involve an entire lobe of the lung. As a rule they are unilateral, but occasionally they are bilateral. Repeated X-ray studies usually disclose no gross changes in the character and extent of these shadows for a period of several months. In time, however, the primary lesions commonly undergo a slow but steady decrease in size. Ac-

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According to X-ray evidence this process of resolution leads eventually either to a complete disappearance of the infiltration, to its reduction to fibrotic strands, or to its replacement by areas of calcification known as Ghon tubercles. These retrogressive changes usually require two or more years for their gross completion. During the period the spontaneous resolution of large primary tuberculous infiltrations is taking place in the lung the patient usually appears to be well, and physical examinations reveal remarkably few signs indicative of the presence of the disease. Without the aid of the X-ray, the remarkable phenomenon of spontaneous resolution so constantly characteristic of pneumonic infiltrations representing the primary phase of the evolution of tuberculosis, and the gradual development of Ghon tubercles could not have been observed in the living patient. The important contribution serial X-ray examinations have made to our knowledge of that part of the primary phase of the evolution of the disease that immediately follows the acquisition of sensitiveness to tuberculo-protein is obvious.

The reparative changes observed to occur regularly in the large and easily demonstrated primary pneumonic lesions probably exemplify the changes that characterize the remaining primary foci of disease which escape roentgenographic visualization. In the absence of evidence to the contrary, I am of the opinion that all lesions representing tuberculosis in the primary phase of its development have a strong tendency to resolve, to fibrose, and to calcify. These reparative changes probably continue on a microscopic scale throughout many years.

The approximate chronologic order of the series of changes which comprise the picture of the primary phase of the evolution of tuberculosis as I understand it at the present time can be outlined briefly as follows:

1. The first infection with virulent tubercle bacilli.
2. The prompt migration of bacilli to nearby and remote organs and parts of the body.
3. The entry of tubercle bacilli with the gastrointestinal tract.
4. The localization of bacilli at multiple points by the neutrophils.
5. The accumulation lymphocytes around these foci of disease and their subsequent conversion into epithelioid cells.
6. The histologic maturation of the primary tubercles
- in the first post-infection month.
7. The appearance, at the end of the symptomless incubation period, of the transitory initial or pre-allergic fever and increased sedimentation rate.
8. The acquisition of sensitivity to tuberculo-protein.
9. The development in a minority of the cases of primary lesions of sufficient size to cast shadows on X-ray films. In the majority these lesions escape detection by X-ray study. Their presence is disclosed, however, by the positive skin reaction to tuberculin.
10. The roentgenographically demonstrable primary lesions remain stationary in extent and gross appearance for several months.
11. Extensive infiltrations produce remarkably few clinical or physical signs.
12. The slow resolution of the pneumonic infiltrations which process commonly leads to their reduction to relatively trivial fibrosed or calcified deposits which may or may not be revealed by X-ray study.

This brief outline presents the concept of the primary or broad introductory phase of the evolution of tuberculosis I have gained from the literature and from studies made over several years on children in whom I have had the opportunity to observe the transition from uninfected to the infected state and to trace the subsequent course of the disease. The information I have obtained from these sources convinces me that tuberculosis would be a disease of minor importance if it never progressed beyond its primary phase of development. Unfortunately the disease enters the second of its two broad phases of development in many patients in whom it then produces chronic pulmonary tuberculosis and phthisis, destructive bone and joint tuberculosis, or other well known serious clinical forms of the disease depending on which organ or tissue is involved.

Follow up studies I have conducted over several years on children have given me the opportunity to witness the development of tuberculous pulmonary infiltrations in the lungs of patients who had been sensitive to tuberculin for several years, and whose earlier chest films were repeatedly normal or revealed the old calcified or fibrosed remains of their primary disease. The intervals during which these tuberculin sensitive patients with primary tuberculosis were traced before the second or reinfection pulmonary lesions made their roentgenographic appearance varied from one to sixteen years. These new tuberculous lesions, whose appearance post-

dated the acquisition of sensitiveness to tuberculin by months or years, failed to display a consistent tendency to revolve. Instead they were usually inclined to spread, to cavitate, and to cause illness and death. In general their course was diametrically opposite to that usually pursued by the primary tuberculous infiltrations. In many important respects the contrast observed between the primary and the reinfection phase of pulmonary tuberculosis is very pronounced.

The careful atopsies reported by Rich and McCordock show that tuberculous meningitis results from the escape of tubercle bacilli from older lesions situated in brain or adjacent structures. According to these studies an antecedent infection which produced intra-cranial tubercles and the subsequent escape of bacilli from these lesions are the steps which lead to the development of tuberculous meningitis. In my opinion, therefore, this form of the disease represents the second or post-primary phase of the development of tuberculosis in the central nervous system. In these cases the primary phase of the disease is represented by the tubercles that eventually give rise to tuberculous meningitis. In a few instances I have observed the development of tuberculous meningitis in patients whom I knew had been sensitive to tuberculin for many months. These observations support the view that tuberculous meningitis represents the second phase of the evolution of tuberculosis involving the central nervous system.

Bone and joint tuberculosis is a well known clinical condition but comparatively little attempt has been made to determine whether it represents the primary or the reinfection phase of the evolution of tuberculosis. X-ray studies of the chest taken at the time that symptoms of osteo-articular tuberculosis made their initial appearance frequently disclose calcified intra-thoracic deposits which have all the characteristics of Ghon tubercles and calcified hilus glands. These calcified tuberculous lesions are at least two years old, for considerable experience has shown that about the length of time is required for the primary complex to become well calcified. Their presence unquestionably ante-dated by months the development of symptoms caused by bone and joint tuberculosis. This circumstantial evidence provides a very

strong indication, therefore, that an antecedent primary tuberculosis preceded bone and joint involvement in these cases.

In order to prove that osteo-articular tuberculosis exemplifies the second phase of the evolution of tuberculosis in this special part of the body complete follow-up data are required. This requirement includes knowledge relative to the time the transition from the uninfected to the infected state occurred combined with subsequent follow-up studies which disclosed the course of the resultant primary disease and established the approximate time the bone and joint involvement took place.

Although osteo-articular tuberculosis is becoming rare in Minnesota I have occasionally had opportunity to witness the development of this clinical variety of the disease in patients who were known to be sensitive to tuberculin for considerable periods before any evidence of bone and joint disease was noted. In one case the acquisition of sensitivity to tuberculin occurred at the age of 17. This was followed shortly by the development of bilateral pneumonic infiltrations which subsequently resolved and left numerous Ghon tubercles. This patient was in excellent health throughout a period of five years following her first infection during which her primary disease resolved and calcified. At the end of this period, however, she developed tuberculosis of the lumbar spine.

This and other similar experiences, combined with circumstantial evidence provided by the frequent finding of Ghon tubercles and calcified hilus glands in patients with bone and joint tuberculosis lead me to believe that this clinical form of the disease represents the second or post-primary phase of the evolution of tuberculosis involving the skeletal system.

Considerable evidence is available which indicates that clinical tuberculosis of the pleura, the peritoneum, the urogenital tract, and of the gastro-intestinal tract also represent the second phase of the evolution of tuberculosis materializing in different specialized tissues. In a fundamental respect, therefore, these clinical varieties of the disease probably are analogous to chronic pulmonary tuberculosis, tuberculous meningitis and osteo-articular tuberculosis. These clinical varieties of the disease give the complete picture of the second developmental phase of tuberculo-

sis a complexity which contrasts sharply with the relative simplicity that characterizes the primary phase of the development of the disease.

Fortunately, in the majority of infected patients, tuberculosis never progresses beyond the primary phase of its evolution. In these patients a positive reaction to tuberculin plus X-ray evidence of primary lesions in some instances provides proof of the presence of the disease. It is from this group with primary tuberculosis, however, that all cases with clinically serious tuberculosis are derived, and each time this occurs in man an antecedent infection with tubercle bacilli has failed to prevent tuberculosis. Nevertheless many investigators believe a contamination of this character is a beneficial immunizing experience. I am of the opinion, however, that these contaminations cause tuberculosis instead of preventing it, and I firmly believe that the eradication of the disease rests exclusively upon the prevention of infection with tubercle bacilli.

An ideal program for eradicating the disease probably should include the following steps.

1. Apply tuberculin tests to the entire population.
2. Make clinical, laboratory and X-ray studies on each patient with a positive reaction to tuberculin.
3. Segregate each patient with open tuberculosis until the condition is no longer contagious.
4. Repeat this type of survey periodically.

Unfortunately this ideal program is an expensive one. Its cost prevents its universal application. A definite need exists, therefore, for devising an economical alternative for the ideal plan for eradicating tuberculosis which can be launched throughout the United States. Perhaps the following plan meets this need to a considerable degree.

- (1) Apply tuberculin tests to the entire personnel of each household unit.
- (2) Make no additional studies on the tuberculin sensitive adults if the junior members of the household react negative to the tuberculin test. Under this plan the failure of children to react positive to the test is accepted as evidence their tuberculin sensitive adult associates are not serving as sources of contagion.
- (3) Concentrate the more expensive clinical, laboratory, and X-ray studies on the tuberculin sensitive members of the household units in which infected children are discovered. This procedure focuses expenditures close to sources of contagion.
- (4) Repeat this type of survey periodically.

This economical plan for eradicating tuberculosis can be used in private practice, and I recommend its adoption by all practitioners of medicine if limited local financial resources prevent the more expensive ideal program.

SUMMARY

1. Two broad phases of development characterize the complete evolution of tuberculosis. Many of the changes that occur in each of these two developmental stages of the disease can be observed during the life of the patient.

2. The chronologic sequence of the known changes that comprise the primary phase of the development of tuberculosis probably is as follows:

The initial infection, the prompt dissemination of organisms to various parts of the body, the focalization of these wandering bacilli at numerous points by neutrophils, the aggregation of lymphocytes around the primary lesions, the conversion of lymphocytes into epithelioid cells, the subsequent histologic maturation of the primary tubercles, the development of the pre-allergic transitory fever and the acquisition of sensitivity to tuberculo-protein, the gradual resolution of the primary lesions which process gradually reduces them to relatively trivial calcified or fibrosed deposits.

3. As a rule tuberculosis never progresses beyond this primary phase of its evolution.

4. The second phase of the evolution of the disease materializes in a small per cent of the patient with tuberculosis in its primary stage of development.

5. The second phase of the evolution of tuberculosis is exemplified by phthisis, tuberculosis of serous membranes, osteo-articular tuberculosis and various other clinically serious forms of the disease depending on which organ or part of the body is involved.

6. A positive tuberculin test discloses the presence of tuberculosis but does not reveal which stage of evolution the disease is in. Clinical, X-ray and laboratory studies are required for determining this point.

7. The only method by which tuberculosis can be prevented is by preventing infection with virulent tubercle bacilli. Two plans for eradicating the disease are given in outline form.

THE PROBLEM
OF CHRONIC ALCOHOLISM IN
STATE HOSPITALS

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Alcoholism has been described as one of the three great diseases in a recent publication by Dr. K. H. Bowman.¹ The alcoholic problem has become one of the major perplexities of our civilization and as such merits a careful study of its economic, political, sociological and psychiatric aspects. As members of the medical profession we can most profitably limit our present discussion to the psychiatric phase of the problem.

The intemperate use of alcohol is among the most important factors responsible for the ever increasing State Hospital population. Chronic alcoholism appears as a prominent etiological factor in approximately twenty-five per cent of all admissions to hospitals and the alcoholic psychosis represents five to ten per cent of all psychoses of first admission. "It has been estimated that first admissions for alcoholism has increased by 700 per cent between 1920-1930, by 117 per cent between 1930-1934, and that it has increased steadily since that time."²

In 1938 the alcoholic psychoses accounted for

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4.5 per cent of all first admissions to hospitals for mental disease in the United States, and in addition 6.9 per cent were patients suffering from alcoholism without psychosis. The magnitude of the problem is well portrayed by the following statistics from the United States Census Bureau.

Table 1
First Admission Rates for Alcoholism With and Without Psychosis to All Institutions for Mental Diseases in the United States

Alcoholism (With psychosis)			Alcoholism (Without psychosis)		
Year	Number of Patients	Rate/100,000 of the general population	Number of Patients	Rate/100,000 of the general population	
				No figures available	
1922	2,693	2.5	No figures		
1933	4,651	3.7	4,202	3.4	
1934	4,762	3.8	6,271	5.0	
1935	4,883	3.8	6,487	5.1	
1936	5,274	4.1	7,813	6.1	
1937	5,639	4.4	8,453	6.6	
1938	4,913	3.7	7,575	5.8	
1939	4,773	3.6	7,458	5.7	

A similar trend has been noted in the State of Illinois. "There were 604 first admissions with alcoholic psychosis in 1939 as compared with 518 in 1938. Since 1922 the number of first admissions has fluctuated quite unevenly from year to year, but the general trend has been upward. A sharp and upward trend has occurred from year to year since 1932 when the number of first admissions with alcoholic psychosis was less than one-half the number received in 1939. Since 1933 the group with alcoholic psychosis

ALCOHOLICS (FIRST ADMISSIONS) IN ILLINOIS STATE HOSPITALS³

Year	With psychosis			Without psychosis			Total		
	No. of Pts.	Rate/100,000 total population	Per Cent	No. of Pts.	Rate/100,000 total population	Cent	No. of Pts.	Rate/100,000 total population	Per Cent
1922	252	3.8	6.6						
1923	422	6.2	10.8						
1924	296	4.3	8.6						
1925	249	3.5	6.8						
1926	298	4.2	8.3						
1927	320	4.4	8.7						
1928	399	5.4	10.1						
1929	388	5.2	9.7						
1930	340	4.5	8.0						
1931	392	5.1	9.0						
1932	288	3.7	7.1						
1933	300	3.8	6.7						
1934	376	4.8	8.3	232	2.9	25.0	608	7.7	10.1
1935	395	5.0	8.6	263	3.3	29.6	658	8.3	10.9
1936	478	6.1	8.6	294	3.7	43.1	772	9.8	12.3
1937	462	5.9	8.5	412	5.2	36.3	874	11.1	13.1
1938	518	6.5	9.0	524	6.5	37.0	1042	13.3	14.4
1939	604	7.6	10.5	585	7.3	36.8	1189	14.9	20.6

1. Bowman, K. H.; Alcohol as a Mental Hygiene Problem. Proc. of First Intern. Cong. on Mental Hygiene 1:444:1932.

2. Medico-Legal Notes: The Commitment of Alcoholics to Medical Institutions: Quart. Jr. on Alc. 1:2:372-387, Sept. 1940.

3. Annual Statistical Review, Ill. Dept. of Public Welfare 1934-1939.

TABLE 3

CLASSIFICATION OF ADMISSIONS 1939-40

Classification	With Psychosis			Without Psychosis			Total			Percent
	Males	Females	Total	Males	Females	Total	Males	Females	Total	
Alcoholics	189	29	218	71	24	95	260	53	313	25.08
Dem. Praec.	155	153	308	—	—	—	155	153	308	24.67
G. P.	—	—	—	—	—	—	74	27	101	8.09
Senile.	35	48	83	—	—	—	35	48	83	6.65
Man. Dep.	25	57	82	—	—	—	25	57	82	6.57
Cer. Art.	42	36	78	—	—	—	42	36	78	6.25
Neurosis	—	—	—	13	17	30	13	17	30	2.40
Ment. Def.	15	9	24	3	3	6	18	12	30	2.40
Drug. Add.	—	—	—	17	13	30	17	13	30	2.40
Invol.	8	19	27	—	—	—	8	19	27	2.16
Deferred	—	—	—	—	—	—	19	3	22	1.76
Others	57	44	101	19	24	43	95	71	166	11.53
TOTAL							742	506	1248	100.00

has become increasingly prominent among the other psychotic groups, representing 10.5 per cent of all first admissions in 1939. First admissions with alcoholic psychosis were received in 1939 at a rate of 7.6 per 100,000 general population, continuing the increasing trend shown during the past years."¹

Another interesting fact disclosed in this table is the upward trend in the number of first admissions of alcoholics without psychosis. In 1934 the alcoholics constituted 25.0 per cent of all first admissions without psychosis and in 1939 they constituted 36.8 per cent.

In an attempt to make a survey of the problem, a study of the admissions to the Manteno State Hospital during the fiscal year of 1939-1940 was made. During this period of time there were 1248 admissions. Table 3 gives the classification of these patients.

Of the total number of admissions, 313 or 25.08 per cent were alcoholics. These were classified as shown in Table 4.

The percentage of cases classified as with psychosis is alarmingly high. Comparing these figures with those of other institutions in the state makes evident the necessity of arriving at a common definition of the term "deterioration." Thus, at the Elgin State Hospital, where the term is used in its narrow psychiatric meaning we find that during 1938 there were 273 alcoholics admitted with only 62 or 22.3 per cent classified as with psychosis; in 1939 there were 260 alcoholics admitted and only 71 or 27.3 per

TABLE 4
CLASSIFICATION OF ALCOHOLICS

	Males	Females	Total	Per Cent
Without Psychosis				
Chr. Alcoholism ...	71	24	95	30.35
Alc. Psych.				
Alc. Det.	122	14	136	43.45
Alc. Psych.				
Del. Trem.	34	3	37	
Alc. Psych.				
Acute Hal.	15	5	20	69.64
Alc. Psych.				
Paranoid	8	3	11	26.19
Alc. Psych.				
Path. Intox.	5	2	7	
Korsakow				
Psychosis	1	2	3	
Other				
Alc. Psych.	4	0	4	

cent were classified as with psychosis. This, then, is the first matter that requires more careful consideration.

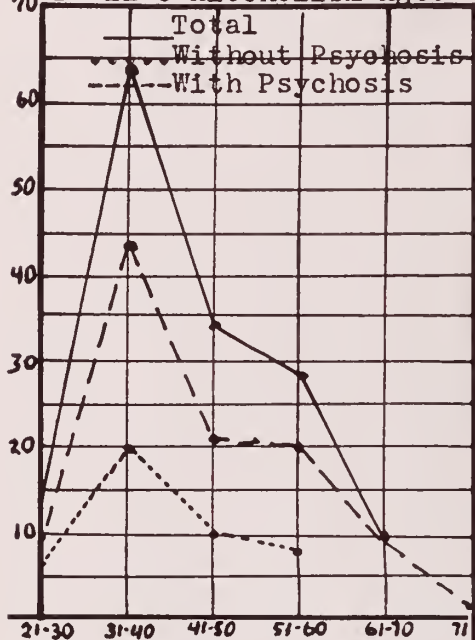
Without any attempt at selection the first 150 alcoholics admitted were studied with reference to the frequency of admissions, the number of re-admissions, the period of hospitalization, the duration of the periods between admissions, and the age, race, and sex of the alcoholic patient.

The average alcoholic patient is a white male 31-40 years of age who has been drinking for 10-20 years and has had three or four re-admissions. Of the cases studied there were only 29 women and only 14 colored patients, with a proportion of four to one and ten to one respectively. In Table 5 we have the relationship of age to alcoholism. It is interesting that in the group studied, the average age of the patient with

1. Annual Statistical Review, 1939. Dept. of Public Welfare. Page 29.

psychosis is ten years above that of the patient classified as without psychosis. In the former case, the average age is forty years and in the latter, thirty years. Horatio M. Pollack states, mental disease follows only many years of drinking (for males 22 years, and for females 15 years), which suggests the possibility of checking the habit and averting mental disease.

TABLE 5 Alcoholism-Age.



In this series of cases there were eighty first admissions and seventy re-admissions. The number of re-admissions ranged from one to seventeen and averaged four per patient. The number of re-admissions was not as large as might have been expected and this might point to the fact that alcoholics do not return as frequently as is the general consensus of opinion. Careful statistics are necessary to clear up this point.

The period of hospitalization ranged from a few days to almost a year and averaged one to three months. This is in marked variance with the total hospital population where 85 per cent of all the patients, 80 per cent of the psychotics, and 96 per cent of the non-psychotics who are discharged have been in the institution less than one year; as compared with the alcoholics were 93 per cent of all alcoholics, 87 per cent of the alcoholic psychosis, and 98 per cent of the alcoholics without psychosis who have been discharged had been in the institution less than one year. This factor accounts for the small

number of alcoholics in the institution at any one time.

The provision for the treatment of chronic alcoholism is inadequate in practically all parts of the United States. In many places the drunkard is arrested, placed in jail, sobered up, fined, and then released. In most cases such a procedure is not only useless but harmful, in that the atmosphere of jail tends to dissipate ethical resistance to drunkenness.

In many large cities conditions have been somewhat improved by the admission of some of the alcoholics to public hospitals. Here the patient receives treatment directed towards an improvement of his physical condition and as a rule these hospitals do a good job as far as the immediate attack is concerned.

The trend, at the present time, has, for various reasons, been towards the admission of such cases to state institutions. Here, as in the public hospitals in the city, the treatment has been directed largely towards the physical well being of the patient. In addition, however, an abortive attempt has been made to treat the underlying factors by means of hydrotherapy, occupational therapy, industrial therapy, and psychotherapy to a very limited extent. The results, however, have been almost uniformly poor. Although a large number of patients are discharged after treatment a large number of them shortly resume their alcoholic habit and return to the institution.

Reasons for the failure of the state institutions to successfully cope with the problem of alcoholism are readily apparent to anyone who has made a study of the subject. The failure is due to a variety of causes. Among them there are factors which are inherent in the very nature of the hospital as a psychiatric institution for the care and treatment of psychotic individuals and as such cannot fully fulfill the requirements necessary for the rehabilitation of the alcoholic whether he be classified as with or without psychoses. The alcoholic patient should be in a place where he can lead as normal a life as possible and where association with other patients will facilitate adjustment to society.

Secondly, the alcoholic patient is not psychotic in the same sense as is the patient suffering from dementia praecox, manic depressive psychosis

and the other psychoses. His difficulties have different causative factors, his condition runs a different course and requires an entirely different form of treatment.

Thirdly, the medical staffs of our various state institutions are not suited for the care and treatment of the alcoholic patient. Their interests are primarily with the psychoses and a re-orientation of their interests cannot be easily changed. Their past experiences with the alcoholic patient have not facilitated such a re-orientation. The frequent and regular re-admission of the "recovered" alcoholic have instilled a feeling of inadequacy amongst the staff members who then adopt an attitude of resignation or even exasperation and hostility and "solve" the problem by "assigning the patient to the coal detail," or by assuming an indifferent attitude towards him and proceeding to forget all about him and his difficulties.

From this it is evident that a different approach to the problem is necessary. Recourse to current articles, however, throws little light on the subject. The literature on the treatment of alcoholic addiction is lagging numerically and in importance behind the literature pertaining to therapy of specific manifestations of alcoholism. We must view the subject as a whole and treat it as such, for the treatment of a specific manifestation is the treatment of a symptom with entire disregard for the disease process as a whole.

What then is the solution of this increasingly important problem? After serious consideration, careful perusal of the literature, and deliberate discussion of the subject with others interested in its solution, the author has the following suggestion to offer. The idea is not a new one, but it deserves much more serious consideration than it has received in the past.

Separate institutions for the care, treatment and study of the problem of alcoholism must be erected. Such institutions will immediately do away with the objections which have been raised against the care of the patient in a State hospital. Here the medical staff and attendant personnel will be chosen because of their interest in the problem, the institution will arrange its routine according to the needs of the alcoholic patient and not merely treat him as an unwanted

byproduct, and the patient will find himself in an environment which is more friendly, more understanding, and more heedful of his difficulties.

The care of the patient should be divided into three phases; in the first phase, the treatment is to be directed towards the restoration or preservation of the physical well-being of the patient. The institution of a proper diet with a sufficient vitamin intake, the alleviation of excitement and procurement of sleep, and general medical and nursing care of the patient constitute this portion of the treatment.

The second phase of the treatment is concerned with the underlying cause of the alcoholic habit. Where the alcoholism is found to be a symptom of some disease, mental or physical, the treatment is that of the underlying disease. Where the alcoholic habit itself is in the forefront, the chief line of attack is a thorough investigation of the factors of the patient's life and personality, a study of his thoughts, emotions, and reactions and a judicious use of the findings as the material of the therapy with an attempt to teach him to replace his weakness with whatever assets he may possess. Though no thoroughly satisfactory ways of treating the ordinary chronic alcoholic are now existent, the consensus (of opinion) is that psychotherapy affords the best possibilities of recovery. This psychological approach will, in itself, be a therapeutic measure. It will be a revelation to the patient, whose habit, until now, had always been regarded by his friends as evidence of moral torpidity and who himself has come to regard his alcoholism as mysterious and inevitable.

Individual and group psychotherapy can be used advantageously in such institutions. By the former method the individual's own problems may be brought to the fore and the patient given an insight into his mental condition, and by the latter method the patient may be given an understanding of the social aspect of the problem.

As important adjuncts to the psychotherapy, carefully planned and carefully directed industrial, occupational, and recreational therapy should be instituted with the object of socializing the patient and preparing him for his future life outside of the institution.

The third phase of treatment is the prepara-

tion of the environment for the reception of the patient. The social service department will play the leading role in this phase of treatment. It will investigate the possibilities to secure work for the patient before he is allowed to leave the institution. The patient will have been prepared, during the second phase of the treatment to regard the hospital and personnel as his friends and will be encouraged to return to the institution to consult the psychiatrist at any time that he feels the necessity for advice and counsel.

SUMMARY

Alcoholism is gradually and steadily forging its way to the fore as the numerically most important problem in the state hospitals. In Illinois the number of first admissions with psychosis has shown a sharp upward trend since 1932 and in 1939 constituted 10.5 per cent of all first admissions with psychosis.

From this study the following facts are evident:

1. That alcoholism is an important psychiatric problem which has been much neglected by the psychiatrist.
2. That the state hospital has failed to cure the alcoholic or learn much about the problem of alcoholism.
3. That there is no relationship between the length of the period of hospitalization and the duration of the period between admissions. Such a finding indicates that *under the present regime* it is not advisable from either a psychiatric or economic point of view to keep the patient in the hospital longer than absolutely necessary to relieve the alcoholic of his acute symptoms and to restore his physical health. Under the suggested plan, however, such is not the case.
4. That time favors the psychiatrist since mental disease follows only after many years of drinking and in the series of cases studied this is a ten year period.

As a result of this study, the following suggestions present themselves:

1. A change in our attitude — we must come to recognize and regard alcoholism as a disease and treat it as such.
2. A common system of classification must be adopted and a unified and recognized tech-

nique of dealing with the problem must be worked out.

3. Separate institutions should be erected for the care and treatment of the alcoholic and the study of the problem of alcoholism. Such an institution, adequately staffed and properly equipped can take advantage of the ten year period prior to the onset of the psychosis and thus avert mental disease resulting from chronic alcoholism.

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DISCUSSION

Dr. Charles F. Read, Elgin: I have met with many alcoholics for many years and feel inadequate to discuss this subject with the idea of bringing to this group any valuable contribution over and beyond what our essayist has already given you.

The other day a man called himself to my attention who had been an institutional alcoholic four years ago, has not taken anything since and has returned to his profession which he is now following successfully. He said to me, "You know, I don't drink, but every now and then something up here (indicating his head) bothers me, and I want to take a drink." So, here is a man in good health, who knows what the penalty would be if he should drink, and yet I am afraid this little imp "up here," now that he knows alcohol will take him away from his problems for a while, will sometime cause him to drink again.

The essayist has indicated very plainly the increase of alcoholics admitted to our state hospitals, where they are not welcome because their treatment is unsatisfactory, and because there are so many other things for the doctors to do that seem to be more worthwhile than the inadequate treatment we can give these patients.

The fact is that the alcoholic as we know him — call him "chronic inebriate" if you please — is a peculiar phenomenon. In what direction does this peculiarity lie? The doctor stated that his psychosis, or psychiatric problem is not such as we see in schizophrenics and others with whom we deal in large groups. What sort of a person is he then? Dr. Phyllis Wittman has made quite a study of a number of these people and out of her work has come the finding that the alcoholic, as we see him, is a society problem. He is a weakling. He has not developed a well integrated personality with an ideology that will hold him, in spite of temptations to misdirect his life and to tangle up his life pattern as it were. It seems that these persons are commonly those who have been dependent upon mother, "suckling," if you will, or have been limited more or less by a father who was

too strict. At a recent national medical meeting I attended a symposium on the chronic alcoholic and after two papers were read I left in disappointment because nothing had been said that would add anything to our knowledge. One of the essayists described the alcoholic according to various traits that have been attributed to him, and read off many traits that you and I possess.

The essayist has suggested other institutions. A nice idea, off-hand! But when are we going to stop building institutions to supply the demands of our various welfare organizations in order to make life comfortable for everybody. That is what the alcoholic wants — an easier life. He wants to get away from his discomforts, so he drinks; and when he becomes a discomfort to the community, we put him in an institution. It is a vicious circle; possibly sometime the last man will enter, throw the key over the wall, and we shall all be institutionalized.

So far as psychotherapy is concerned, that is fine — if we know how to use it. I know the alcoholic can be converted religiously; or, in the wider sense of the term, suffer a conversion by realizing that it is better for him not to drink. Then he is cured — for the time being.

In research, much can be done to ascertain what sort of a somato-psychic organization the "chronic inebriate" represents. Are his faults due to faulty physiological adaptation, or is he actually psychotic? I question whether he is a psychotic as we are accustomed to dealing with them. We imprison those who go into a house to steal, and for those who deliberately drink alcohol to steal away their reason we recommend hospital institutionalization. These people, we say, are "sick." You might say that all those who don't do well and who have not established a life pattern that will carry them along decently in life to their own comfort and that of the group in which they live are also sick.

I would suggest also a study of recovered alcoholics — those who at least have been stabilized for three to five years — to see what helped them to reform, what were the factors contributing to their reinstatement. Were they primarily a better sort of people than those who have failed so persistently and so constantly?

Dr. George Rooney, Joliet: I believe that this problem would go right back to the physicians who are in private practice. Most of us in private practice, especially in general hospitals, want to get rid of our alcoholics just as fast as possible. For this reason I believe that we could educate the private practitioner into holding the alcoholic who is acute in a general hospital for a short time until we definitely have the idea that he is psychotic, and then he must be placed in an institution for the proper care. I feel that a great deal can be accomplished in that way. It is my idea that most men fear the psychiatrist for some reason, and for that reason they immediately

think it is easier to get a commission together and send him away to a state hospital where he stays for a short time and then goes right back into the general public.

Dr. D. L. Steinberg, Elgin: Several approaches to the problem of chronic alcoholism could be attempted, even under our limited facilities at the present time. Erection of new institutions require more money and more staff members, but meanwhile there could be established a unit in any one of the state hospitals for the study and treatment of alcoholic patients, rather than wait until the State can find sufficient funds to set up a separate institution.

There is one statement I would not subscribe to. That is that alcoholism is a separate study from psychiatry and should not be part of the state hospital physician's domain. I think that the day of state hospitals being known as custodial institutions for chronically ill mental patients is gone, and we should do nothing to encourage its return.

Dr. R. Novick, Manteno (closing): Time does not permit either a discussion of the ramifications of this problem, important and interesting though they may be, or the addition of facts which will support the main thesis of this paper.

Relative to the financial aspect of the problem, which has been raised by the discussants, I wish to point out that though the immediate outlay for the erection and equipment of such an institution may be considerable, the plan, from a long term point of view, is financially sound.

The setting up of a separate unit within the state hospital would not involve the expenditure of any money, but at the same time it would not remove the alcoholic from an environment which does not facilitate a cure or lead to a change in the attitude of the hospital personnel towards the alcoholic. These basic difficulties of the present set-up would still be with us. The plan is an improvement over existing conditions, but is merely a compromise, a compromise which I cannot full-heartedly endorse.

I wish to thank the discussants for their remarks and regret that Dr. Baer could not be with us today.

AND SO TO BED

Some time ago I saw an article in the paper about an old gentleman in North Carolina who had had a cardiac attack. This problem, as we well know, is sometimes difficult. It is hard to tell how to treat them. This old gentleman was 90, and was married to a lady of 28, and had a child two and one-half years old. Six months before he had this cardiac attack he had another child. The doctor said he was doing pretty well and they thought he would recover. It occurred to me that this case presented a problem in treatment — whether to keep this old gentleman out of bed or in bed.—*Dr. Francis R. Hagner, M.D., Transactions of the Southern Surgical Association, 1937.*

THE ELECTROCARDIOGRAPHIC CHANGES OBSERVED DURING ARTIFICIALLY PRODUCED CONVULSIONS

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AND

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Studies on the circulation before, during, and after convulsive seizures have been carried out by various investigators. Pollack and Treadway¹ found that "certain circulatory and respiratory changes occurred in relation to an epileptic convulsion," the blood pressure rising from 26 to 60 seconds prior to convulsion, while from "nine to twelve seconds immediately preceding the seizure, a sudden marked drop in blood pressure occurred, remaining relatively low during the time occupied by the petit mal attack."

It has already been established that agents employed in the production of artificial seizures, are known to have a marked excitatory effect on the central autonomic nervous system (Gruenwaldt²). Pollock and Holmes³ found a periodic rise and fall in blood pressure, occurring during a picrotoxin convulsion, but apparently having no definite time relationship to it. Stimulation of the autonomic nervous system during metrazol convulsions was reported by Gellhorn,⁴ Heilbrunn and Liebert⁵, and Masserman⁶ was able to demonstrate a direct rise in blood pressure by direct topical application of metrazol to the region of the hypothalamus.

Because of the clinically frequent use of metrazol in the production of artificial convulsions, it was considered advisable to make a more detailed study of its effects upon the circulatory system with particular reference to the electrocardiographic changes that may be brought about. Himwich⁸ has carried out metrazol experiments in dogs and has reported a marked prolongation of the PR interval, a partial heart block and early T wave changes; these disturbances remained unchanged even after bilateral vagotomy and ganglionectomy but disappeared following the administration of oxygen. Quite recently Kline, Fetterman,¹² and Pellens,¹³ have described

severe conduction disturbances occurring in man following a convulsion and suggested that the pace-maker changes were due either to a powerful vagal stimulation or secondarily due to the mechanical effort of the seizure upon the heart. Bellet and Kershbaum¹⁴, using electric current as a convulsant, observed severe electrocardiographic disturbances in 66% of their cases.

In the above cited experiments, muscular interferences prohibited the recording of an electrocardiogram during a convulsive seizure. The earliest electrocardiographic changes can only be observed in a completely immobilized animal, which would also have the advantages of excluding the effects upon the myocardium of any metabolic disturbances.

In the following experiments, the animals were completely immobilized by either curare or ether narcosis, and in this manner, an undisturbed electrocardiographic tracing could be taken from the very onset of the injections of the various convulsants.

Method and Material: Tracheotomy was performed on rabbits weighing about 3,000 grams, under light ether anesthesia for the purpose of induction of artificial respiration. After the effect of the ether had worn off, 10 c.c. of a .1% solution of curare (Merek) was administered intravenously, until a complete paralysis of voluntary and respiratory muscles was obtained. The above is sufficient to paralyze the animal, but will allow the animal to recover after a few hours. Metrazol was then administered intravenously in doses varying from 0.3 c.c. to 0.7 c.c. of a 10% solution. Electrocardiographic readings were taken prior to, during, and after the administration of each drug employing the use of lead CF₄* or the conventional lead II.

In another experiment deep ether narcosis was used for the immobilization of the animal. Tracings were taken before, during, and after deep narcosis (absent corneal reflexes). Metrazol was administered during this narcosis and continued action current of the heart was then recorded. In order to compare the action of metrazol with other convulsants, thujon was used in another series of experiments.

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*Standardization of precordial leads by the American Heart Association, J.A.M.A. 110: 682, 1938.

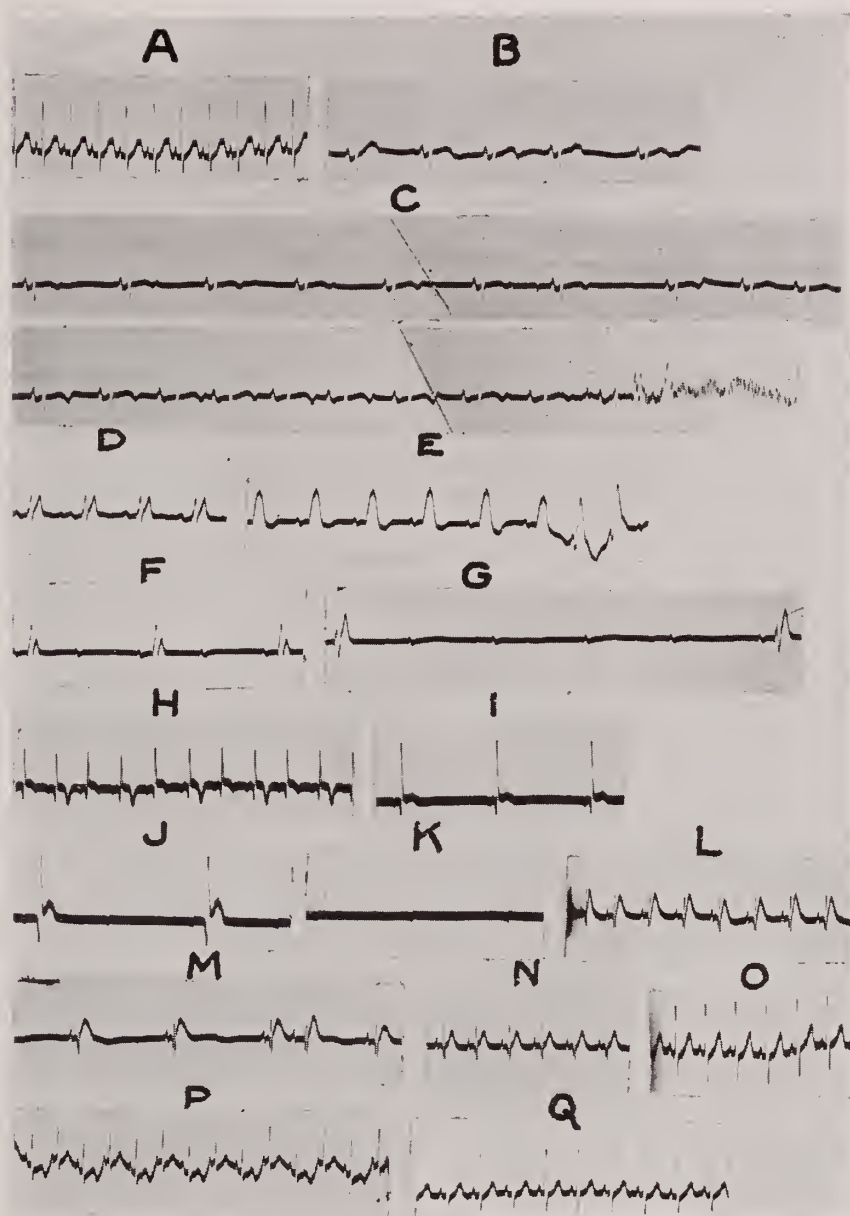


Figure 1: (A) Normal control; (B) During curare injection, slowed rate due to artificial respiration; (C) 0.3 c.c. of metrazol, followed in six seconds by tachycardia, prolonged PR, inverted T and later somatic tremor; (D) 12 minutes later, high ST take-off with shortened QT interval; (E) curare producing transient bundle branch block; (F) 0.4 c.c. metrazol converting (E) into a 2:1 intraventricular block; (G) 0.5 c.c. metrazol producing 5:1 block; (H) 0.7 c.c. metrazol showing tachycardia, ST elevation, and cove-shaped inverted T wave showing electrical alternans; (I) 65 seconds later showing return except for deep Q wave; (J) acute asphyxia showing 2:1 block, deep Q, elevated ST segment, short QT interval; (K) ventricular standstill, auricles beating at rate of 80; (L) 0.7 c.c. of metrazol showing immediate tachycardia, absence of ST segment with appearance of intraventricular block, and deep Q; (M) 25 seconds later showing varying PR intervals; (N) 4 minutes later, restored to normal; (O) normal control for ether narcosis; (P) 70 seconds after 0.3 c.c. during which animal has awakened, showing depressed ST segment, and the inverted T waves showing electrical alternans; (Q) return to the normal control at conclusion of the experiment.

Results: The control electrocardiogram in all cases showed no evidence of pathology (Fig. 1, A), the normal rabbit heart rate varied between 270 and 290, was regular in rhythm and the T waves were upright. Immediately following the injection of curare and the installation of artificial respiration, the heart rate generally dropped to about 100. After a period of 3 to 5 minutes the frequency became more stabilized and returned to an approximate rate of 180 (1, B). Sinus arrhythmia was observed at this stage of the experiment and was interpreted as being due to the influence of artificial respiration on the heart rate; this arrhythmia disappeared completely subsequent to the increase in the frequency of the heart rate.

The records of five experiments are given below as typical examples for our experiments:

Rabbit I: 0.3 c.c. of metrazol produced an immediate slight inversion of the T wave, becoming more pronounced with the appearance of a clonic somatic tremor. An ST elevation occurred during the next 60 seconds, but 30 seconds later this and the T wave had become almost entirely restored to the normal. 0.7 c.c. of metrazol increased the heart rate immediately from 110 to a regular rate of 230, elevated the ST segment, and produced a curious type of electrical alternans of the T wave, indicated by a small biphasic wave alternating with a deeply inverted, cove-shaped wave occurring in every other cycle (1, H). A gradual return to the normal could be observed during the next 65 seconds and the heart rate returned to a frequency of 110; however, the Q wave remained pathologically exaggerated (1, I). Acute asphyxia produced by cessation of artificial respiration resulted in a further drop of the heart rate to 45 a minute. It showed, furthermore, a 2 to 1 AV block, a high ST segment, and the same type of electrical alternans of the T wave noted (1, J). The changes culminated in a ventricular standstill, the auricles continuing their regular rhythm at a rate of 80 at the conclusion of the experiment (1, K).

Rabbit II: Exactly 6 seconds after the administration of 0.3 c.c. of metrazol, the heart rate increased from 80 to 120 and coincidentally the PR interval became somewhat prolonged (1, C). These changes appeared 6 seconds before the electrocardiographic appearance of a slight

somatic tremor and before the dilatation of the pupils. As long as 12 minutes following the injection, an abnormally high ST elevation could still be seen, with a markedly shortened QT interval; the heart rate was 140 per minute and the entire ventricular configuration very suggestive of an intraventricular conduction delay (1, D). Further curare inoculation produced complete bundle branch block with numerous auricular and nodal extrasystoles which had not previously been noted in curare experiments (1, E). 0.4 c.c. of metrazol suddenly interrupted these changes. Forty seconds after the injection a dilatation of the pupils could now be noted and about 2 minutes later there occurred again a marked intraventricular block, now showing a 2:1 relationship (1, F). 0.5 c.c. of metrazol at this time converted the block into more serious grades, varying from 3:1 to 6:1 and continued so until the conclusion of the experiment (1, G).

Rabbit III: Four seconds following administration of 0.5 c.c. of metrazol one noted a deep negative Q wave and an increased rise in the heart rate from 100 to 190, which was followed 8 seconds later by a transient cove-shaped T and a depression of the ST segment; during the next few minutes short spurts of tachycardia occurred associated with extrasystoles arising from numerous foci, auricular and nodal in character. The ST depression soon returned to a normal level after six minutes but the deep negative Q remained throughout the entire experiment. 0.7 c.c. of metrazol at this point produced an immediate rise in heart rate from 150-170, an elevated ST take-off, with a final disappearance of the ST segment. The T wave itself developed a high take-off and in many respects resembled the intraventricular type of QRS complex noted in previous experiments (1, L). Twenty-five seconds later the heart rate dropped from 230 to 95, the T wave remained very tall and there were numerous nodal and auricular systoles, varying PR intervals, and occasional P waves not followed by any ventricular complex (1, M). Four minutes after the last injection the ST segment returned to its iso-electric level, the T wave approached the normal, but a deep Q persisted for 20 minutes at the conclusion of the experiment (1, N).

Rabbit IV: Another series of experiments with

deep ether narcosis was used in order to abolish the muscular movements of animals during convulsion. By using an agent which would act on the central nervous system directly, one might expect an electrocardiographic tracing different from that seen in the above experiment in which curare was used as a paralyzing agent. Metrazole was injected during the narcosis and only after the corneal reflexes had been absent for a considerable length of time. Eight seconds following the administration of 0.3 c.c. of metrazol a slight depression of the ST segment was noted which became more definite about 18 seconds later, coincident with the appearance of somatic tremors. Seventy seconds later the depression of the ST segment became more marked and was associated with a sharply inverted T wave, showing the configuration of an electrical alternans (the animal was awake by this time) (1, P). A control tracing five minutes later still showed some evidence of these changes, but these were completely abolished by deep ether narcosis, (1, Q). Again 0.6 c.c. of metrazol was injected intravenously and about twenty-five seconds following the injection, one noted transient ST depression with a quick recovery to the normal curve. Therefore the effect of metrazol on the heart muscle under ether anesthesia was either nullified or became markedly delayed.

Rabbit V: During the experiment employing thujon, 0.1 grain curare produced a progressive slowing of the heart rate but which later returns to the normal rapid rate, when artificial respiration was initiated. Three seconds following injection of 0.4 grain thujon, three successive ventricular extrasystoles appeared, 3 seconds later an inversion of the P wave (lasts only five seconds), and slowing in heart rate, and sixty seconds later a return to the normal control. 0.6 grains thujon injection was followed by a tachycardia 12 seconds later, dropping out of QRS complexes on alternating heart beats, occurred 18 seconds later accompanied by ventricular extrasystoles, and 60 seconds later a return to the normal control. In this latter case, the pupils dilated 40 seconds after injection. Eleven seconds following the injection of 0.6 c.c. metrazol one sees inverted P followed by ventricular extrasystoles, 9 seconds later (pupils dilated) by paroxysmal ventricular tachycardia occurring in

short strips, alternating with periods of auricular fibrillation and terminating in this manner.

Comment: The above cited electrocardiographic tracings indicate that severe disturbances of the action current of the heart are demonstrable following the intravenous administration of convulsant doses of metrazol in an experimentally curarized animal. The first noticeable change is a sudden increase in the heart rate which occurs before any evidence of a somatic tremor or any other sign of a convulsive discharge can be noticed. The rhythm remains regular and the increase of heart rate occurs quite abruptly suggestive of a direct central stimulation of the central sympathetic nervous system. Similar sudden elevations of the frequencies of the heart rate were noted in picrotoxin experiment² and also by Masserman⁶ following direct application of metrazol to the hypothalamus. Coincidentally, or shortly following this sudden discharge of the autonomic nervous system, severe changes in the electrocardiographic tracings can be seen such as ST deviations, T wave changes and persistent depression of the Q waves, suggestive of severe myocardial ischemia. One may assume that these latter changes are also caused by a stimulation of the central sympathetic nervous system, leading to an interruption of the coronary circulation; in the rabbit anesthetized by ether, little or none of these disturbances could be noted, at least as long as the rabbit was kept in deep narcosis. That the ischemia may reach an extremely severe degree was evidenced by the relatively frequent occurrence of a comparatively rare disturbance of the electrocardiogram known as electrical alternans, a phenomena only recently described in this country by Hamburger & Katz⁹ and later by Kisch.¹⁰ These authors are of the opinion that the electrical alternans is caused by a generalized severe form of ischemia of the heart muscle and not by more local disturbance of the blood flow as generally seen in coronary occlusions. It has been observed in man only on very rare occasions and it has always been indicative of a fatal lesion. In the animals these changes could be seen even before any other alterations occurred, but were reversible in contrast to the cases reported in the literature.

The prolongation of the PR interval, extrasystoles and intraventricular conduction changes

are indicative of an interruption or disturbance of the conduction apparatus. It may be questionable whether these changes were also caused by a central stimulation or were rather secondary to a local ischemia. However, in rabbit No. 2, The PR prolongation occurred before any T wave changes could be seen in the electrocardiographic tracings and it may be surmised that the interference with the conduction apparatus, as evidence by the prolongation of the PR interval, was also induced centrally. Such a prolongation could not be seen in the anesthetized rabbits. Waters¹¹ reported the case of a patient in whom pressure on the eyeball produced cardiac standstill, whereas ether anesthesia completely abolished this ocular-cardiac reflex.

Thujon was observed to act in a similar but less drastic manner than metrazol.

SUMMARY

Following the injection of a convulsive dose of metrazol in an experimental animal, severe changes of the electrocardiogram can be noted and which precede any convulsive movements or any other evidence of a convulsive discharge. The changes observed are indicative of a stimulation of the central autonomic nervous system and precede a generalized seizure by several seconds. The pathological findings consisted in an increase in the heart rate followed closely by a high degree of ischemia which even led to the appearance of a wave formation known as electrical alternans; T wave changes, ST deviation and persistent Q wave were also noted. An early prolongation of the PR interval was thought to be due to a central stimulation of the parasympathetic nervous system; the later forms of intraventricular block were undoubted evidence of conduction disturbances. The vagal slowing would appear to be related to the period of apnoea following a convulsive seizure and demonstrated in our experiment with curare.

Metrazol, administered in a convulsive dose leads to very profound disturbances of the electrocardiogram, brought about by a central stimulation and overstimulation. This effect can be completely abolished or markedly reduced by ether anesthesia. Although all the changes observed were rather transient in appearance, they were so severe and drastic that they led to alternans disturbances, paroxysmal fatal tachycardia, and even auricular fibrillation.

Thujon was considered to be milder as a convulsant and less drastic in producing EKG disturbances in the curarized rabbit.

Our results would suggest a more cautious use of metrazol, particularly in patients with known diminution of myocardial function.

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DISCUSSION

A. A. Low, M.D., Chicago: As every investigation, the paper presented by Drs. Lieberman and Liebert has both a theoretical and practical aspect. From a practical viewpoint, a study of this kind ought to supply the answer to the vexing question whether or not active convulsive therapy is fraught with danger. It is a credit to the conservative spirit of the essayists that they approached this question with the proper scientific caution. In their final conclusion they state, with becoming reserve, that care is indicated in the use of metrazol, "particularly in patients with known diminution of myocardial function." Undoubtedly, everybody will agree with this conclusion.

We are all aware of the difficulties of interpreting electrocardiographic records. Of course, we know that an abnormal electrocardiogram does not necessarily

mean an abnormal heart. All of us had the distressing experience that a curve was declared "definitely pathological" by the laboratory worker and discounted as insignificant by the clinical consultant. We also know that the electrocardiogram of the same patient may present no notable changes today and somewhat alarming indications tomorrow. Moreover, with special regard to the subject of induced convulsions, the curve may improve in some cases after repeated seizures and may deteriorate in others similarly treated. In reviewing the literature on electrocardiographic studies of induced convulsions, one is struck by the fact that what the one author declares to be a common finding is designated as a rarity by others. Auricular fibrillation is, for instance, commonly mentioned by many investigators as a frequent finding after metrazol convulsions. However, Kline, Fetterman and Williams emphatically state that it "was not observed in a single instance" in their series.

The electrical alternans which Drs. Lieberman and Liebert found as a "relatively frequent occurrence" in their animals is an instance in point. It is known as a notoriously rare complication. Hamburger and Katz claim they encountered the phenomenon once only in close to 10,000 electrocardiograms. However, they add that once their attention was aroused they met with it in three subsequent cases in rather quick succession. They suggest that its occurrence might be less uncommon if the investigators were more "alternans conscious." The fact is that Drs. Lieberman and Liebert had a surprisingly frequent incidence of this rare condition in their animals. Is this due to the vigilance of the essayists who became "alternans conscious?" Or, is it rather due to the fact that rabbits may be more susceptible to damage from convulsive seizures and more likely to produce alarming symptoms? One must also remember that curare was used in the present experiment and that the effect of the drug on the accessory muscles of respiration may have added to the strain of cardiac function. Whatever may be the correct explanation, the difficulty of interpretation must always be kept in mind. The essayists ought to be congratulated on their experimental care, and more particularly, on their cautious procedure in interpreting the results of their investigation.

Dr. B. H. Hilkevitch, Chicago: I am glad to have the opportunity to discuss the valuable contribution of Dr. Lieberman and Dr. Liebert. Dr. Low, made an excellent and constructive discussion, and since I am in complete agreement with most of his remarks, I am going to try to limit my discussion to those aspects of this paper which Dr. Low has not touched. To be more precise, I will discuss the technical aspects of their investigation and the significance of the electrocardiographic changes.

Before evaluating the significance of these changes, it appears to be of importance to evaluate the factors

of the experimental "set up" which may have some influence on the electrocardiogram.

It is considered the "curare" has no effect on the cardiovascular system, but we do know that in a number of cases it will cause a drop in the blood pressure, and in larger doses it may even produce considerable excitation of the centers of the autonomic nervous system. With this in mind, one may assume that certain electrocardiographic changes may be the result of direct or indirect effect of "curare." The validity of the latter statement can be found in a recent report of Dr. S. Bellet* and co-workers. They report, in a patient on whom metrazol treatment was instituted after an injection of curare, advanced EKG changes such as: change in rhythm, disturbance in conduction, as well as changes in the ST and T segments. Yet, when metrazol treatment alone was instituted the tracings were normal. Additional evidence of possible influence of "curare" on the EKG, can be found in one of the experiments of the essayists. In this experiment an additional injection of "curare" following a dose of metrazol was given, and immediately severe EKG changes occurred — such as partial block and later bundle branch block — these changes disappeared when metrazol was given again later.

The above remarks were essentially to guard us in the interpretation of the tracings observed by the authors and considered the result of metrazol alone. As you have seen, the abnormalities reported practically embrace the whole scope of electrocardiography namely: changes in rate and rhythm, all forms of conduction disturbances (including even total heart block), nearly all forms of ectopic beats (including short runs of paroxysmal ventricular tachycardia and ventricular fibrillation), as well as abnormalities in P, QRS, ST, and T segments. All these changes, except the QRS, ST and T segments, and paroxysmal ventricular tachycardia and ventricular fibrillation, could easily be caused by excitation of the centers of the parasympathetic and the sympathetic nervous system — namely the hypothalamus — as the result of the direct action of metrazol on these centers. Yet, some local factors acting on the sympathetic and parasympathetic nervous system, as well as changes in the reaction (pH) of the blood may be responsible for these disturbances.

Changes in the ST segment (especially elevation of it) and changes in the T wave are usually, if not always, caused by ischemia of the heart. I think that such changes in the present study are the result of impaired coronary circulation as well as insufficient oxygenation of the blood. I want to remind you that abnormalities in the ST and T segments occurred in practically all experiments following a considerable increase in the heart rate after metrazol injections.

*Bellet, S.; Kershbaum, A.; Furst, W.; *Am. J. Med. Sc.*; 201: 167: '41.

In these cases the heart rate is often doubled. Now, it is known a marked tachycardia even in a normal heart may produce changes in these segments; the reason being that in tachycardia, the diastolic phase is shortened and thus interferes with the filling of the left ventricle and also, to some extent, with the filling of the coronary arteries. In addition, the artificial 'set up' of the experiments had other factors disturbing the normal cardiovascular dynamics. Thus, the complete paralysis of the skeletal musculature and the diaphragm interferes with the filling of the right heart, also the paralysis of the splanchnic nerves is an additional factor in impairing the circulation. All this, will produce a disturbance in coronary circulation with the resulting abnormalities in the tracings. Even the appearance of the extrasystole from different foci, the paroxysmal ventricular tachycardia, and ventricular fibrillation are probably due to the same factors.

I want to conclude my sketchy remarks by saying that I am in complete agreement with the authors, that the observed changes were transitory. They are observed on experimental animals under artificial conditions, and naturally these results cannot be totally carried over to human beings; but they do warrant the authors cautioning doctors to be more careful in selecting patients for metrazol treatment. My personal experience, as well as the experience of other investigators, is that only advanced myocardial changes are definite contraindications for metrazol treatment.

Dr. Alan Lieberman, Elgin (closing): As to the effect of curare, it has recently been reiterated in the literature that curare is known only to effect voluntary muscles and has no effect whatsoever upon involuntary or smooth muscle, and therefore, has not been known at any time to have any effect on the heart. In our experience we attempted through artificial respiration to restore the respiratory rate to a condition which is relatively normal for the rabbit, and our best experimental control is the normal electrocardiographic tracing of the animal, which we have been able to indicate in every instance prior to and after every experiment.

As regards the ST and T wave changes which may be construed as being due to the direct action of metrazol upon the heart, this possibility is equally as logical as the other possibility that the effect is centrally induced, producing a vaso-constriction of the coronary vessels. We are all familiar with the frequent occurrence in patients receiving metrazol of a feeling of overwhelming fear and very sharp precordial pain.

I am very grateful to Dr. Low and Dr. Hilkevitch for their comments and suggestions.

BLOOD AND BLOOD SUBSTITUTES IN THE TREATMENT AND PREVENTION OF SHOCK: WITH PARTICULAR REFERENCE TO THEIR USES IN WARFARE

By Alfred Blalock, M.D., and M. F. Mason, Ph.D.,
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Condensed from the *Annals of Surgery*

In the treatment of traumatic shock the primary objective is the restoration of a blood volume reduced by hemorrhage, loss of plasma locally at the site of the injury, or generally as a result of increased capillary permeability. Infusion of crystalloidal solutions only transiently increases the blood volume and may, eventually, still further reduce it. Only whole blood or plasma may safely, effectively, and permanently restore the volume of the circulation. Plasma is preferable because a unit volume supplies more osmotically active protein than does whole blood. The latter is essential only in the presence of anemia.

Valuable time is saved in emergencies by having preserved whole blood from universal donors and plasma available at a moment's notice. The improvement in the treatment of injuries in civil practice is an index of this increased availability of blood and plasma in blood banks.

The limitations of whole blood are accentuated under conditions of warfare. Plasma is better adapted to cope with this situation. This is particularly true of dried plasma which may be preserved indefinitely at uncontrolled temperatures. The length of time that sterile liquid plasma may be safely kept unrefrigerated is not yet established. It must also be remembered that a liter of liquid plasma when transported carries with it 950 Gm. of unnecessary water in addition to the 80 Gm. of essential protein.

In civil life dried plasma can be made available in communities remote from blood banks. Dried plasma has certain disadvantages both in civil and war surgery. Its preparation is expensive; sterile distilled water must be available; and time is required for the dried powder to go into solution. This is usually only a few minutes, however. Liquid plasma may thus be administered with less delay and less equipment. Nevertheless the dried form will remain superior to liquid plasma until the problem of permanent preservation of the latter is solved.

Despite hemolysis and the gradual diffusion of electrolytes from the erythrocytes, preserved whole blood not over 2 weeks old is usually as effective as fresh blood in the treatment of shock. After the blood has aged to the point of being too old for use as whole blood it may be converted into plasma.

Clinical-Pathological Conferences

J. J. Moore, M.D., Department Editor.

PRESENTATION OF CASES

By

I. DAVIDSOHN, M.D., PATHOLOGIST

Mount Sinai Hospital

CHICAGO

HEMOCHROMATOSIS, THYMOMA, SEVERE ANEMIA AND ENDOCARDITIS IN A WOMAN

A 58 year old white woman was admitted for the first time on 10-27-39 with the complaints of pain in back, fever for 6 weeks, and headache. Past History: Patient was seen by her physician one month prior to admission with essentially similar complaints. At that time the blood count revealed 3,330,000 red blood cells. Fluoroscopic examination revealed a mass in the mediastinum. When she was seen again on the day of admission her red count dropped to 1,510,000.

Physical examination: Blood pressure 164/74, temperature 99.8, pulse 108, respiration 24. Findings: Pale visible mucous membranes and atrophy of mucosa on left side of tongue. Heart was slightly enlarged to the left with a soft systolic murmur at apex.

Laboratory reports: Blood chemistry: Sugar 111 mg. per 100 cc. of blood, urea nitrogen 18.5 mg., non-protein-nitrogen 31.4 mg., uric acid 3.98, chlorides 580 mg., calcium 11.2 mg., icterus index 8.8. The Kolmer complement fixation and the Kahn precipitation tests for syphilis were negative. Sedimentation rate 155 mm./1 hr.; Blood count: red blood cells 1,650,000; white blood cells 7,200; reticulocytes 0; hemoglobin 5.2 Gm. (31.2 per cent), color index 1.0. Differential count: segmented leucocytes 73, lymphocytes 36, monocytes 1. There was slight anis- and poikilocytosis. In the further course the red count showed only moderate changes, the highest being 2,260,000, the same holds for the hemo-

globin, the highest being 39 per cent. There was no noticeable increase in the reticulocytes, but the white cells were consistently low dropping to 4,500. Sternal puncture showed a depression or hypoplasia of the erythropoietic elements of the marrow. Urinalysis: no abnormalities. Gastric analysis, alcohol test meal: free HCl 40, total acidity 60. Electro-cardiogram, normal. X-Ray examination of the chest revealed: "A pathological mass in the right upper anterior mediastinum about the size of an egg. The outline of this mass is very regular. We are under the impression that we are dealing with a true tumor formation and not with an aortic aneurysm. For the differential diagnosis, we have to think more of a benign than of a malignant growth."

Clinical course and treatment: The temperature was elevated in afternoons and down in mornings varying between 98.6° and 100.2°. Patient was given reticulogen and 3 blood transfusions, but did not improve. The blood picture remained essentially the same. Patient was discharged on 11-17-39. The patient was in the hospital four more times, for periods varying from three days to seven weeks. The complaints and findings were essentially the same. The anemia persisted with brief rises immediately following the transfusions, of which upward of sixty were given by the end of 1940. Only on one occasion (in August 1940) was the blood sugar above normal (157 mg.). The mediastinal mass remained unchanged. Several blood cultures showed no growth. During the intervals she was also admitted to other hospitals with essentially the same findings. Once a sternal biopsy was removed. The results were similar to those found in the sternal punctures in the Mount Sinai Hospital.

The last admission was on 2-16-41. Condition

of the patient was about the same except for the appearance of a skin rash over most of the body. Temperature was elevated at first then normal for one week, then went back to the old course of elevation in afternoons up to 103.8 F. and down in the morning until patient was discharged. Patient was still getting repeated transfusions. During this stay the red counts varied from 1,800,000 to 3,300,000, the hemoglobin varied from 32 to 55 per cent, the color index from 0.8 to 1.2, the white counts were higher than on previous occasions varying from 7,400 to 14,800. The differential counts showed increases of segmented leucocytes up to 88 per cent. The reticulocytes were higher at first, reaching a peak of 1.8 per cent, but toward the end of the stay another drop took place and reticulocytes could not be found. Patient was discharged on 3-25-41.

The patient remained home until her death on May 5, 1941. The body was brought to the hospital for autopsy.

DR. L. EDIDIN.

This very interesting case presented a difficult diagnostic problem. The cardinal points in the history were anemia, fever, mediastinal tumor and cardiac findings. The anemia apparently developed under our very eyes. On the first examination in the office the hemoglobin was 65 per cent and the red blood count 3,330,000; a month later, the hemoglobin was 28 per cent and the red blood count 1,500,000. Numerous blood smears showed nothing characteristic, except a reduction in the red blood cells and a corresponding reduction in the hemoglobin, and absence of reticulocytes, with the exception of a brief rise for a period of two weeks on her last admission to the hospital. The anemia did not respond to any form of treatment, such as iron, liver, or transfusions. Transfusions of which she received about 75 over a period of 16 months served only as replacement therapy without any influence on the anemia, and had to be repeated about every ten days to keep the patient alive. Except for a few periods of normal temperature lasting from one to two weeks, fever was present throughout the course of the disease. The temperature ranged from 99 to 102 during her first stay in the hospital and from 99 to 104 during the last stay, rising even higher in the final stages of her illness.

The mediastinal shadow was regular in outline and about the size and shape of an egg. In the antero-posterior view, it seemed to spring out of the aortic arch. In the oblique view and under the fluoroscope, it seemed to lie to the right and at the bifurcation of the trachea. Its size and appearance remained the same on all films throughout a period of 17 months.

The cardiac findings consisted of a soft, blowing systolic murmur at the apex, increasing somewhat in intensity as the illness progressed.

Diagnostic possibilities: (1) Aplastic anemia was easily ruled out because the granulocytes were, if anything, increased, and the bone marrow showed only a hypoplasia of the erythropoietic function. (2) Infectious endocarditis was eliminated by the absence of any of the cardinal findings, such as, petechiae, clubbing of the fingers, and palpable spleen. The anemia was too severe for an infectious endocarditis. The murmur could have been caused by the anemia. (3) Aneurism was considered, but the pulsation was not marked enough, the Wassermann was negative, and the fever and the anemia were too severe. The incidence of aneurism in women is very infrequent. (4) a metastatic tumor of the mediastinum was ruled out by the lack of growth of the mass during the period of observation of 17 months, by the failure to locate a primary source, and absence of other metastases.

The most probable diagnosis considered was Lymphoma (Hodgkins, Lymphoblastoma, etc.) with Pel-Ebstein syndrome and anemia due to suppression or involvement of the bone marrow.

DR. I. DAVIDSOHN.

The autopsy was performed four hours after death. The body was in a good state of nutrition. The skin was somewhat darker than normal over the arms and neck, with small areas of desquamation, but of normal color elsewhere, with slight pitting edema of the legs. Transudates, 1300 cc. in the abdominal cavity, and 200 cc. in the right and 100 cc. in the left pleural cavities, were present. Fibrinous deposits and occasional petechial hemorrhages were found on the inner surface of the pericardial sac and over the auricles of the heart with a normal amount of pericardial fluid. The heart weighed 370 grams. A few small firm vegetations were attached firmly to the chordae tendinae of the

anterior leaflet of the mitral valve. Their surface and the surface of the slightly thickened leaflets were smooth and glistening. The other valves appeared normal. The myocardium was soft and dark brown. The coronary arteries appeared normal. The thyroid weighed 22.5 Gm. It was dark brown and contained nodules up to 8 mm. in size with a transparent, moist and homogeneous sectioned surface. In the upper right mediastinum, close to the right border of of the trachea and of the aorta, but not attached to either was a firm, globular, encapsulated mass, 45 x 45 x 40 mm. in size, with a dark brown lobulated sectioned surface and enclosing smooth homogeneous yellow nodes up to 10 mm. in size. The left lung weighed 310 Gm., the right 500 Gm. Both were emphysematous, with occasional bullae, with purplish areas of atelectasis in the lower lobes, and with patches of bronchopneumonic consolidation in the right middle lobe. The spleen weighed 400 Gm. Old firm adhesions to the diaphragm and to the splenic flexure of the colon, a recent fibrinous perisplenitis and two anemic infarcts near the upper pole, the larger measuring 3 x 2 x 1 cm., were present. The consistency was firm, the sectioned surface smooth, dark rusty brown, with indistinct follicles. The artery and veins were without abnormalities. The liver was somewhat smaller than normal (1370 Gm.). The color was reddish brown, with flat nodules on the outer and sectioned surfaces with an obliterated acinar structure, the consistency firm. The pancreas, of about normal size, had a deep reddish brown color which was emphasized by the light yellow color of the abundant surrounding and infiltrating fat. The mucosa of the stomach and of the small intestines was thin, deep brown and covered with a thick mucus. The lymph nodes were small, rather firm and dark brown. The other organs showed no remarkable changes. In a blood culture taken at the autopsy *B. coli* was found.

Microscopic examination:

Liver: Massive deposits of a brown granular pigment are present within the epithelial cells of the acini, within the Kupffer cells (Fig. 1), in the epithelial cells of the bile ducts and in the interacinar connective tissue. The latter is greatly increased in amount, producing a distortion of the liver architecture and enclosing

proliferating and branching bile ducts (Fig. 2). Some fat infiltration is present. Special stains revealed iron in the pigment. The picture is that of an extreme hemosiderosis and a moderately advanced cirrhosis. Pancreas: Here, too, massive accumulations or iron containing pigment are present, mostly in the greatly increased interstitial connective tissue with an atrophy of the parenchyma (Fig. 3). Similar deposits of pigment were found in the spleen, in the lymph

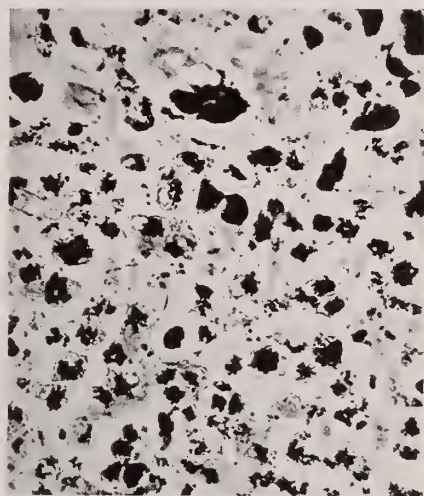


Fig. 1. High power magnification. Stain for hemosiderin. Rich deposits of iron containing pigment in the epithelial cells and in Kupffer star cells. Note the Kupffer cell at top filled to bursting.

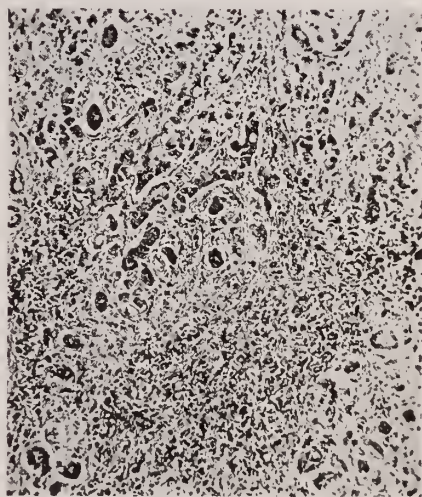


Fig. 2. Liver. Increase of interlobular connective tissue and distortion of the normal structure by invasion of the lobules. Proliferation of bile ducts. Abundant deposits of pigment.

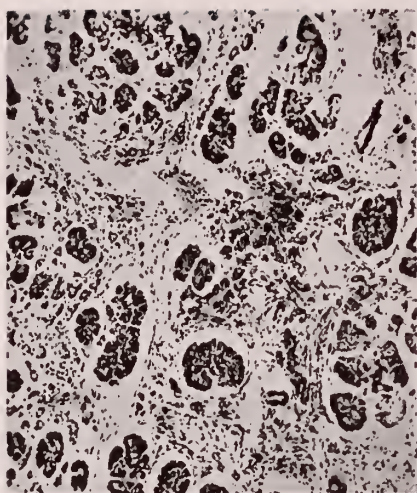


Fig. 3. Pancreas. Atrophy of parenchyma with increase of interstitial connective tissue. Deposits of pigment.

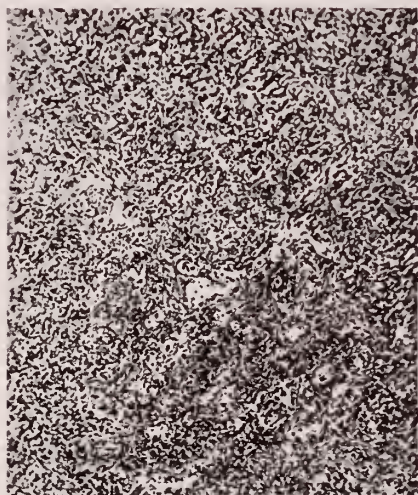


Fig. 4. Thymoma. Low power magnification showing the two types of cells, the polygonal and spindle shaped cells surrounding the large pale cells with abundant cytoplasm.

nodes, in the zona glomerulosa of the adrenals, in the thyroid, in the muscle fibers of the heart, in the bone marrow, in the mucosa and to a lesser degree in the other layers of the stomach and of the small intestines, in the mediastinal tumor and in the cells of the anterior lobe of the hypophysis. In the kidneys deposits of iron pigment are localized in the epithelial cells of the distal portions of the convoluted tubules and nowhere else. The skin contains no iron pigment and normal amount of melanin. In the

pulmonary alveoli a small number of cells loaded with blood pigment are found, but no evidence of hemosiderosis. The brain is free of hemosiderin.

Mediastinal tumor: A network of polygonal and spindle shaped cells with round and oval shaped nuclei and a rather indistinct cytoplasm encloses small groups of large cells with vesicular nuclei and abundant fat rich cytoplasm (Fig. 4). The blood vessels are numerous and many bundles of nervous fibers are present. Occasional round structures are seen resembling rudimentary Hassal corpuscles. The histologic picture is that of a so-called lymphoepithelioma of the thymus.

Heart: In addition to the rich deposits of iron pigment within the muscle fibers, characteristically located at the poles of the nuclei and spreading from there in all directions, sections from the mitral valves show severe acute and subacute inflammatory changes limited to the interstitial portions of the leaflets with massive infiltrations with mononuclear histiocytic cells, with some leucocytes and with occasional foci of necrosis. The intimal surface is intact and free of thrombotic deposits; newly formed blood vessels are abundant. In sections stained with Gram stain bacteria could not be found. The surface of the epicardium shows marked hyperemia and exudation of fibrin on the surface. The changes in the mitral valve are indicative of an early endocarditis.

Sections from the stomach show a diffuse edema and infiltration of all the layers with lymphocytes and plasma cells. Similar changes are also present in the duodenum and jejunum.

Bone Marrow: In addition to the already mentioned deposits of iron pigment there is a definite decrease of the precursors of red blood cells, a hypoplasia of the erythroblastic portion of the marrow, the myeloid and megakaryocytic elements being fairly normal.

Anatomic diagnosis: Hemochromatosis of liver, pancreas, spleen, lymph nodes, thyroid, heart, stomach, small intestines, adrenals, hypophysis, kidneys and of the mediastinal tumor, pigmentary cirrhosis of liver, fibrosis and atrophy of pancreas, thymoma (lymphoepithelioma) of mediastinum, acute vegetative endocarditis of mitral valve, acute fibrinous pericarditis, chronic

gastritis and enteritis, multiple anemic infarcts of spleen and an acute fibrinous perisplenitis with old adhesions, bronchopneumonia (terminal) of right middle lobe, bilateral hydrothorax and ascites, severe anemia and *B. coli* septicemia.

Discussion No. 2: The disease entity found in this patient was first described by Trousseau in 1865. Hanot and Chauffard introduced the name bronze diabetes in 1886 and von Recklinghausen called it hemochromatosis in 1889. The recent exhaustive review by Sheldon lists 311 verified cases up to 1934, only twenty-five of them in women. Of the triad of bronzing of the skin, of diabetes, and of extensive deposits of iron containing pigment, only the last mentioned is always present. The pigmentation of skin though present in the majority of cases (about 84 per cent), is absent in about 16 per cent. In some the skin may be dark, but no iron pigment is found, as was in our patient. In some instances, the melanin of the skin is increased in amount.

Diabetes is present in about 80 per cent, but may be absent entirely, as was in our case, because not too much significance can be attached to the finding of an elevated blood sugar (157 mg.) on one occasion, with many tests showing normal sugar levels and never even a trace of sugar in the urine. It may be that a sugar tolerance test might have revealed an abnormal curve in our patient. It seems that the appearance of diabetes is only a matter of time. The longer the duration of the disease the larger is the incidence of clinical diabetes.

The cirrhosis of the liver is regularly present. It is considered the result of the pigmentary deposits. The liver is usually large, but occasionally not enlarged as in our case.

There are other diseases with deposits of iron — holding pigment, for instance hemolytic anemias of all kinds, or pernicious anemia. In these the pigment is located in the cells of the reticulo-endothelial system and its deposition does not lead to fibrosis and cirrhosis. In hemochromatosis the pigment is deposited in the secreting epithelial cells of the parenchymatous organs as well as in the endothelial cells and the reticulum of the reticuloendothelial system. It is claimed, though not without objections, that the former location is the earlier and that

the reticulo-endothelium gets the overflow. The amounts of deposited iron may be enormous. While the normal amount of iron in dried liver tissue varies from 0.05 to 0.1 per cent, the average in hemochromatotic livers is 3.65 per cent and as much as 7.6 per cent was found. The total iron in some analyzed livers amounted to over 21 grams while the iron accumulated in the entire body was estimated in some instances to reach from 40 to 50 grams.

Where does all the iron come from? It was believed for a long time that it comes from the blood. It is estimated that about 150 mg. of iron per day is needed for the production of blood. Most of it comes from the breakdown of red blood cells. The average iron content of a normal balanced diet amounts to from 10 to 20 mg. per day. It was found that 6 mg. of iron per day is the minimum needed in the food. If the diet contains less than the minimum of 6 mg. of iron blood regeneration suffers. It is assumed that the 6 mg. that is needed in the diet is the quantity of iron lost in the course of metabolism from the 150 mg. that are supplied by the destroyed red cells. It was suggested that the abnormality of metabolism in hemochromatosis is due to the retention of all or of a part of the 6 mg. of blood iron which has to be supplied by the diet. However, various reasons speak against this concept. Some of them were mentioned previously. It seems more likely that the deposition of iron has something to do with the secretory function of cells in some or most of the parenchymatous organs. That would explain the location of the iron in the epithelial cells of many organs. Sheldon suggested that the deposits come from the iron used in internal cellular respiration and that it is a part of the cellular pigment cytochrome which takes part in cellular respiration. According to this hypothesis the abnormality consists in the inability of the cell to return the iron of the cytochrome pigment. Retention of amounts as small as 1.25 to 2.5 mg. per day would suffice to bring about the accumulation of the large amounts of iron in the course of years. This hypothesis would also explain the deposits of hemofuscin, a pigment related to melanin, and of copper, both of which are increased in hemochromatosis and both of which are contained in cytochrome.

The blood shows as a rule no quantitative or qualitative changes. There is no anemia. The anemia in our patient may have been due to the chronic gastritis and enteritis; the endocarditis can not explain it because it had all the earmarks of recent origin and could have hardly been older than a few weeks. The recorded instances of thymoma have not been associated with anemia unless they were malignant and then the anemia was of the type in advanced malignancy. In our patient the tumor, though histologically malignant, remained stationary during the entire period of observation of seventeen months and at autopsy showed no signs of invasion or of metastasis.

It is assumed that hemochromatosis is a congenital disease. This is supported by a considerable number of reported instances of familial occurrence. The deposits of iron accumulate slowly and clinical manifestations begin to appear when the amount of iron reaches the level of from 40 to 50 grams. According to some estimates that would take approximately fifty years, which is the average age when the disease was observed in most cases. In younger persons the finding of hemochromatosis was usually accidental at necropsies. The unusual features of our case are the occurrence in a woman, the absence of demonstrable iron in the skin and of diabetes, the only two findings which make a diagnosis possible. To make the picture still more complicated a severe anemia, an unusual finding in hemochromatosis, a mediastinal tumor and an endocarditis were present.

DOCTORS AND ARMY MEDICINE

Army medicine in the United States began with the Revolutionary period when Dr. Joseph Warren, a major general of militia, and several other medical men fought in the line during the Battle of Bunker Hill. Major C. R. Darnall, Medical Corps, (retired as brigadier general on December 31, 1931) originated and devised a method of purifying water by means of chlorine. In 1910 he added to his discovery by developing a mechanical liquid chlorine water purifier which is now used throughout the world.

Major Walter Reed, Medical Corps, assisted by members of his medical board, made the outstanding investigation about yellow fever, proving this particular disease to be transmitted by the mosquito. During the Spanish-American War of 1898, the "Reed-Vaughn-Shakespeare Typhoid Board" composed of medical officers, was appointed to make a

study of the disease in the Camps. The report of these Army officers on typhoid shed much of our present light on the disease.

In 1908 the Army sent Major F. F. Russell, Medical Corps, to Europe to study the epidemiology of typhoid fever in foreign armies. Surgeon General George M. Sternberg, a pioneer bacteriologist, founded the Army Medical School and during his administration, laboratories were established in all station hospitals. He made many researches on pneumonia, malaria, yellow fever and serum therapy. An Army doctor, Colonel Bailey K. Ashford, at work in Puerto Rico in 1910 discovered that the disease "Debilitating anemia" was due to hookworms and thereby laid the foundation for the eradication of the parasitic infestation.

Colonel E. B. Vedder, Medical Corps, (retired as colonel on October 31, 1933) furthered the accomplishments of the Army Medical Department by his fortunate and wise investigation of diets of all the troops in the tropics and their relation to this deficiency disease, resulting in the complete elimination of beriberi in the Army.

Major Raymond A. Kelser, an Army Veterinary Officer, developed a very successful vaccine against rinderpest, a highly destructive disease of cattle. This took place in the Philippine Islands about 1928 and was instrumental in the saving of many thousands of water buffalo, which are the beasts of burden in the Orient.

Again in Puerto Rico, Major John Van R. Hoff, Medical Corps, and the chief surgeon of the Puerto Rican command, put on an active campaign to free the island from the scourge of smallpox, by reinstituting controlled vaccination of thousands of its inhabitants.

Medical officers of the World War made numerous advances in surgery and orthopedics. The use of antiseptics in the treatment of wounds led to the use of Carrell-Dakin solution. In the Civil War 31,978, a ratio of 10.48 per 1000 died from wounds in hospitals, and in the World War 13,691, a ratio of 4.5 per 1000.

The career of the medical officer in the United States Army may not offer so great a financial reward as that of the successful civilian doctor.—*The New York Physician*.

(Ed. note.—We are indebted for this information to the publishers of MILITARY MEDICAL MANUAL, the fourth edition, which has just been released by the Military Service Publishing Company of Harrisburg, Pa.)

In tuberculosis, I suggest that we are in this and in other countries, under-armed for the defense of the healthy as well as for the defense of the sick. J. B. McDougall, M.D., Bull. de l'Union, Inter, Contre Tuber., July, 1939.

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

The first meeting of the Clinical Section of the Chicago Heart Association will be held on Wednesday, November 19, at Billings Hospital, P-117, from 10:00 A. M. to 12 Noon.

The Bond County Medical Society honored Dr. J. D. Chittum of Sorento at a banquet in Greenville on September 30 when he was presented with the 50 year pin, the emblem of the Illinois State Medical Society and at the same time was presented a certificate of life membership in the Society in honor of his services. The presentation speech was made by James S. Templeton. Dr. R. F. Herndon gave the scientific paper of the evening talking on "Coronary Artery Disease."

WHAT GOVERNOR GREEN SAYS OF HEALTH DEPARTMENT

In announcing October 2 that he would retain Dr. Roland R. Cross as Illinois Director of Public Health, Governor Dwight H. Green said, "I have considered the direction of the Department of Public Health as such a vital function in government, that almost from the day of my election last November I have given constant consideration to the selection of the man under whose direction the Department should be. I have consulted with many medical and health authorities, and the recommendation of Dr. Cross has been almost unanimous. . . . Since he has been in charge of the Department, marked advances have been made in disease prevention and general health conditions throughout the State. Dr. Cross' campaign of public education in itself is a great recommendation, for it is by teaching people the way to health that they can be safeguarded best."

DR. PETTITT BECOMES ASSISTANT STATE HEALTH DIRECTOR

On October 14, 1941, Governor Dwight H. Green appointed Dr. Herbert L. Pettitt of Morrison, Illinois, to the position of Assistant Director of the State Department of Public Health. Well known in medical and public health circles, Dr. Pettitt is a graduate of the College of Medicine of the University of Illinois, a Fellow of the A.M.A., and an active member of the Illinois State Medical Society. Besides about thirty years of experience in private medical practice, Dr. Pettitt has to his credit a year of service in the Army Medical Corps during the last World War, has been a member of the Board of Directors of the Illinois Tuberculosis Association for the last eleven years, and served as President of the Whiteside County Tuberculosis Association from 1930 to 1940.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

The Department's annual Illinois Conference on Public Health will open at 9:00 a.m. December 4 in the Auditorium of the Centennial Bldg., with Dr. Alice V. Keliher of New York University giving a demonstration of the utilization of motion pictures in group health education. At the afternoon session the recent impressive experiments at Johns Hopkins on the prevention of deafness in school children will be described by Dr. L. M. Polvogt. Dr. Anton Julius Carlson of the University of Chicago will talk on the subject, "Sub-clinical Disease; Are Our Present Conceptions of Health and Disease Adequate?" at the banquet session at 6:30 p.m. in the Abraham Lincoln Hotel. Among the highlights of the second day's program will be a discussion of

nutrition by Dr. Clifford J. Barborka and a talk on water supplies and dental caries by Dr. H. T. Dean of the U.S.P.H.S. The full preliminary program of the Conference will be released in an early issue of the ILLINOIS HEALTH MESSENGER.

I.P.H.A. WILL MEET DURING ILLINOIS CONFERENCE ON PUBLIC HEALTH

The regular annual business meeting of the general membership of the Illinois Public Health Association will take place at 12:15 p.m. December 4, with a luncheon at the Leland Hotel, Springfield.

7th DISTRICT POST GRADUATE CONFERENCE

November 18

Benwood Hotel, Effingham, Illinois

E. S. Frazier, M. D. — President Effingham County Medical Society, Presiding

3:00-3:30 P. M. — "Pneumonia" — Wayne W. Fox, M. D., Evanston, Clinical Assistant in Medicine, Northwestern University Medical School.

3:30-4:00 P. M. — "Otitis Media, Mastoiditis and Their Complications" — George H. Woodruff, M. D., Joliet.

4:00-4:30 P. M. — "Surgical Complications of Biliary Tract Surgery" — Charles H. Phifer, Chicago, President Illinois State Medical Society, Professor of Surgery, University of Illinois College of Medicine.

4:30-5:30 P. M. — Round Tables in Medicine, Eye, Ear, Nose & Throat, and Surgery.

5:30-6:30 P. M. — Social Hour

6:30-7:30 P. M. — Dinner

7:30-8:15 P. M. — "Blood Dyscrasias, Diagnosis and Therapy" — Aaron Arkin, M. D., Chicago, Clinical Professor of Medicine, Rush Medical College.

Ogle County Medical Society held a Fall Meeting Oct. 16, 1941 at the Spoor Hotel, Oregon, Illinois. Election of officers: Dr. DuMont, Mt. Morris, President; Dr. Dearborn, Byron, Vice President; Dr. Bogue, Rochelle, Secretary and Treasurer; Dr. W. E. Kittler, Rochelle, Delegate (Two Years); Dr. Bogue, Rochelle, Alternate Delegate; Dr. Warmolts, Oregon, Censor

(Two Years); Dr. Kloster, Oregon, Censor (Three Years).

Dr. Kittler read a memorial to the late Dr. Kennedy.

Dr. Dearborn of Byron was voted a membership.

Mr. Clinton, County Superintendent of Welfare, spoke to the meeting and explained the new laws on Medical Assistance to pension patients.

Dr. Leonard Weber, Asst. Prof. of Dermatology, University of Illinois gave a talk on "Common Diseases of the Skin." This was illustrated with slides and very instructive bringing out many questions of interest.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY EYE, EAR, NOSE AND THROAT SPECIALISTS ELECT OFFICERS

Dr. James A. Babbitt, emeritus professor of clinical otolaryngology (diseases of the ear, nose and throat) at the University of Pennsylvania School of Medicine, and associate professor of otolaryngology in the university's graduate school of medicine, Philadelphia, was named president-elect of the American Academy of Ophthalmology and Otolaryngology at its annual meeting in Chicago, Wednesday night, October 22. Dr. Babbitt will take office January 1, 1943. The present president-elect is Dr. Ralph I. Lloyd, Brooklyn, who will assume office on January 1, 1942.

Vice presidents elected are Drs. Walter Theobald, Chicago; Forrest J. Pinkerton, Honolulu, Hawaii, and Francis E. Le Jeune, New Orleans. Dr. Cecord H. Large, Cleveland, was reelected comptroller and Dr. William P. Wherry, Omaha, Nebraska, executive secretary-treasurer.

Awards for the best scientific exhibits were also announced Wednesday night. The awards were made in three classifications: For excellence of presentation, Dr. Phillips Thygeson, Presbyterian Hospital of New York received the award in ophthalmology for his exhibit on infections of the eye and treatment with the sulfonamide drugs, and Dr. Maurice F. Snitman of the University of Illinois, Chicago, the award in otolaryngology for his exhibit on anatomy of the ear, nose and throat.

In the section on ear, nose and throat the award went to Dr. Paul Holinger of the Uni-

versity of Illinois College of Medicine, Chicago, his work on a new method of photographing of the lower part of the respiratory tract, the tracheobronchial tree and the esophagus.

The third group of exhibits were those judged for their teaching value. Awards were given to Dr. Peter Kronfeld of the Illinois Eye and Ear Infirmary, Chicago, for studies of tension within the eye and to Dr. Henry B. Orton, Newark, N. J., for an exhibit on cancer of the larynx.

Dr. Harry S. Gradle of Chicago was awarded a medal commemorating twenty-one years of continuous service to the Academy.

COMING MEETINGS

November 11 — Kankakee County Medical Society, Kankakee, 8:00 P. M. Italo F. Volini — "Sulfanilamide Group of Drugs."

November 11 — Bureau County Medical Society, St. Margaret's Hospital, Spring Valley —

November 12 — Will-Grundy County Medical Society — Louis Joliet Hotel Joliet, 12:00 noon — James H. Hutton — "Recent Progress in Endocrinology."

November 12 — McDonough County Medical Society — Macomb — evening — F. G. Norbury — "The Nervous Patient in General Practice."

November 13 — Tri-County Medical Society — Galesburg Club, Galesburg — 4:00 P. M. —

Howard L. Alt — "The Common Blood Diseases Seen in General Practice."

Francis L. Lederer — "The Clinical Significance of Hoarseness."

Ralph A. Reis — "Office Gynecology."

Geza deTakats — "Peripheral Vascular Disease."

November 18 — 7th Councilor District Post Graduate Conference — 3:00, Benwood Hotel, Effingham.

November 19 — Will-Grundy County Medical Society, Louis Joliet Hotel, Joliet, 12:00 noon — Archibald Hoyne — "Scarlet Fever."

November 26 — Will-Grundy County Medical Society — 12:00 noon, Louis Joliet Hotel, Joliet — S. M. Feinberg "Hay Fever Management: Evaluation of Various Methods."

November 27 — 2nd Councilor District Post Graduate Conference — Kaskaskia Hotel, LaSalle — 12:00 noon — luncheon.

December 9 — Bureau County Medical Society — Perry Memorial Hospital, Princeton — Dinner at 6:30 P. M.

December 9 — Effingham County Medical Society — Benwood Hotel, Effingham, 6:30 — George L. Apfelbach, "Methods Employed in Examining for Lower Back Pain and Manipulative Treatment."

December 10 — Will-Grundy County Medical Society — Louis Joliet Hotel, Joliet — 12:00 noon —

MARRIAGES

GEORGE ROGERSON WOLTMANN, Chicago, to Miss Betty Thomas of Urbana, August 2.

PHILLIP HENRY BEST, Paris, Ill., to Miss Ruth Moritz of Effingham, June 28.

DEATHS

GILBERT HAVEN AYLING, Kankakee, Ill.; Northwestern University Medical School, Chicago, 1909; served during the World War; on the staff of St. Mary's Hospital; aged 59; died, August 29, of coronary occlusion.

JOHN C. BERRY, Chicago; Chicago Medical College, 1890; aged 73; died, September 21, at the Englewood Hospital of mesenteric thrombosis.

ARTHUR HENRY BRUMBACK, Chicago; College of Physicians and Surgeons of Chicago, 1884; member of the Illinois State Medical Society; at one time on the staff of the Westside Hospital; aged 79; died, September 10, in the Garfield Park Hospital of acute dilatation of the heart and cirrhosis of the liver.

WILLIAM ERNEST CARY, Chicago; Rush Medical College, Chicago, 1921; assistant clinical professor of medicine at the University of Chicago, The School of Medicine; attending physician on the staff of the Chicago Memorial Hospital; aged 52; died, August 29.

GEORGE HOWARD FULLER, Tuscola, Ill.; University of Wooster Medical Department, Cleveland, 1896; for many years president of the school board; aged 73; died, September 1, in Decatur.

HUBERT WILLIAM HANCOCK, Chicago; St. Louis College of Physicians and Surgeons, 1918; aged 56; died, July 7, of coronary thrombosis.

RALPH JOSEPH KARRASCH, Chicago; Loyola University School of Medicine, Chicago, 1936; member of the Illinois State Medical Society; aged 32; died, July 30, at Martha Washington Hospital of bilateral apical pneumonia with streptococcic infection.

ARVID ERNEST KOHLER, Moline, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; served during the World War; aged 67; died, September 6, in the Moline Public Hospital of a mediastinal tumor.

JEREMIAH EMMET LEAHY, Chicago; Jefferson Medical College of Philadelphia, 1896; veteran of the Spanish-American War; clinical assistant in surgery at Northwestern University Medical School from 1910 to 1913; aged 70; died, September 13, of coronary thrombosis and arteriosclerosis.

FRANK CUTLER LINDEN, Chicago; College of Physicians and Surgeons of Chicago, 1889; aged 80; died,

August 30, at Neosho, Wis., of injuries received in an automobile accident.

WILLIAM FREDERIC NUTT, Chicago; Chicago Physio-Medical College, 1898; aged 87; died in September of hemorrhage of the urinary bladder.

MAURICE J. RUBEL, Chicago; Johns Hopkins University School of Medicine, Baltimore, 1901; aged 66; died, September 17, of carcinoma of the liver.

CHARLES EMERSON SOULE, Beardstown, Ill.; College of Physicians and Surgeons of Chicago, 1889; president of the Cass County Medical Society; secretary of the school board; ages 78; died, August 14.

JULIUS WIRTH, Highland, Ill.; New Orleans School of Medicine, 1870; aged 94; died, August 15.

MARCUS GERSH WOLK, Chicago; University of Tomsk Faculty of Medicine, Tomsk, Siberia, 1912; member of the Illinois State Medical Society; aged 60; died, July 7, of embolus and cerebral hemorrhage.

TONSILLECTOMY AND POLIOMYELITIS

Further evidence of the possible relationship between tonsil operations and infantile paralysis is contained in a report in *The Journal of the American Medical Association* for September 20 by Carl E. Krill, M.D., Akron, Ohio, and John A. Toomey, M.D., Cleveland, of the tragedy that recently struck a family at Akron.

"The presence of poliomyelitis (infantile paralysis) in epidemic form in various parts of the United States during this summer and fall, the obvious increase in the incidence of the bulbar type (affecting the respiratory muscles) of the disease and the suspected association between tonsillectomies and bulbar types of paralysis make the present preliminary report of general interest," the two physicians say.

"Five of six children, aged 11, 9, 8, 7, and 6 years, had a tonsillectomy and adenoidectomy (surgical removal of the tonsils and adenoids) on August 22. The operations were done under general anesthesia and under the strictest of aseptic (sterile) precautions in a clinic, and the children went home the same day in good condition. Three of the children began to show symptoms of poliomyelitis on September 3. One child probably started to have symptoms on the third and another on the fifth of September. All the symptoms were referred to the gastrointestinal tract — anorexia (loss of appetite), nausea and vomiting. Dysarthria (imperfect speech due to a disorder of the nervous system) and dysphagia (difficulty in swallowing) developed in 3 of the children on September 6 and in 2 the next day, so that by September 7 all 5 had bulbar poliomyelitis. In 2 there was involvement of the right seventh nerve and in 1 of the left (nerves of motion, secretion, etc., of the face, ear, palate and tongue). In 3 there was palatine (roof of the mouth) paralysis. In 1 child there was a lower motor neuron lesion (injury of certain nerve cells in the spinal column) involving muscles of the arms and legs, paralysis being more marked in the upper arms. One child died at 6:30 a. m. and 1 at 3:30 p. m. on September 8; a third

died at 11:30 a. m. on September 9. One child appears as though he should get better, but the other is still seriously ill.

"The parents and the child of the family who was not operated on, who is the youngest of the children and 2½ years of age, have had no symptoms of the disease.

"Since the operations were performed under most sterile conditions and surroundings, it is unlikely that the disease was introduced at that time. This leaves two possibilities: (1) Poliomyelitis virus may have been present in the throats of these children at the time of the operation or (2) the virus was introduced after the operation. The time interval between the operations and the onset of symptoms — twelve days — makes one suspect that the virus was not present in the throats when the tonsils and adenoids were removed and that it probably was introduced later. Whether or not the virus is present in the stools of the child and the parents who are asymptomatic (lack of symptoms) remains to be ascertained by further study.

"There have been no cases of poliomyelitis in the neighborhood where this family lives. The only possible epidemiologic connection lies in the fact that from August 28 to September 2 the stricken children played with two other children who had been visiting some neighbors. The visiting children lived directly across the street from a patient who had died of bulbar poliomyelitis in Cleveland City Hospital on Aug. 4, 1941."

NAME IS CHANGED

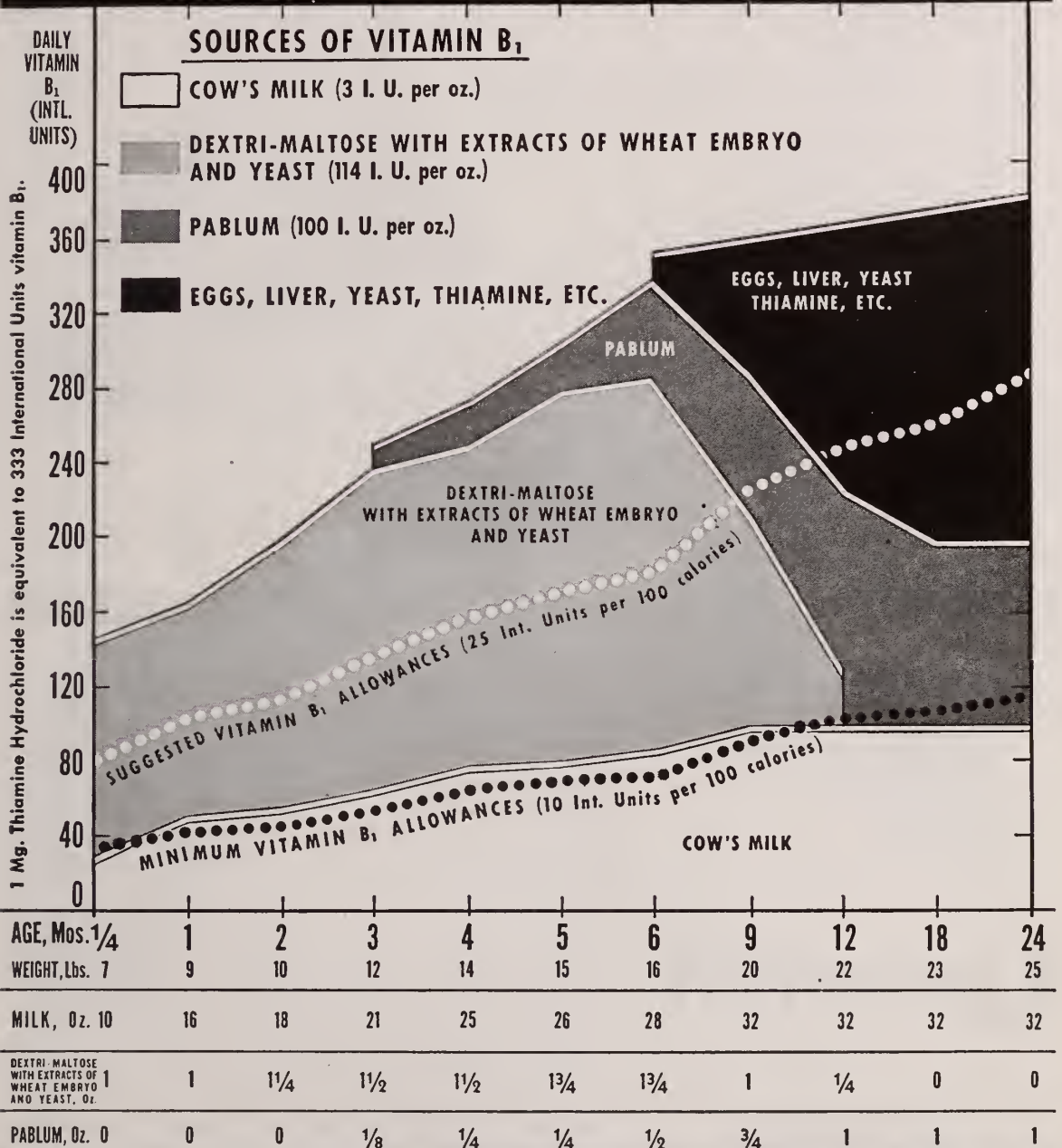
A change in the spelling of the name "Petrolagar" to "Petrogalar" has been announced by the Petrolagar Laboratories. The change is being made in both the product name and corporate name.

Company officials, while pointing out that the adoption of the new spelling does not affect the formula or quality of the product in any way, said that they considered the change advisable to avoid any possible misconception as the nature of the product.

"Because it has never been the intention of the company to imply that agar-agar was used for any other purpose than as an emulsifying agent, the last syllable of the former name has been altered in favor of the new spelling," officials said.

Officials emphasized that no change has been made in the size of the package, price, or formulae and that each of the five different types of the product will carry the new spelling "Petrogalar." The new corporate name is: Petrogalar Laboratories, Inc., and the address remains, 8134 McCormick Boulevard, Chicago, Illinois.

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1 Elvehjem, C. A. — Nutritional Requirements of Man — Ind. & Eng. Chem., June 1941.

2 McCollum, E. V. — The Newer Knowledge of Nutrition — 5th Ed., 1939, p. 392.

3 McLester, J. S. — Nutrition and Diet in Health & Disease — 3rd Ed., 1939, p. 91.

4 McCollum, E. V. — The Newer Knowledge of Nutrition — 5th Ed., 1939, p. 320.

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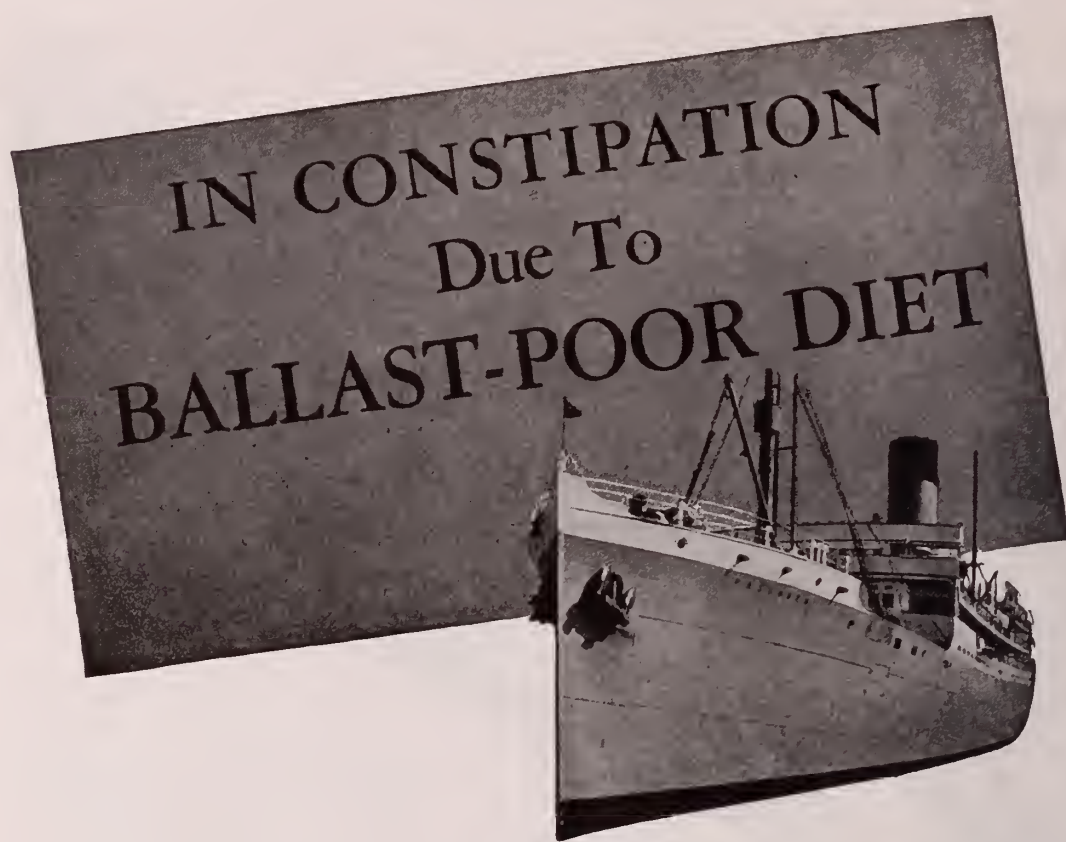
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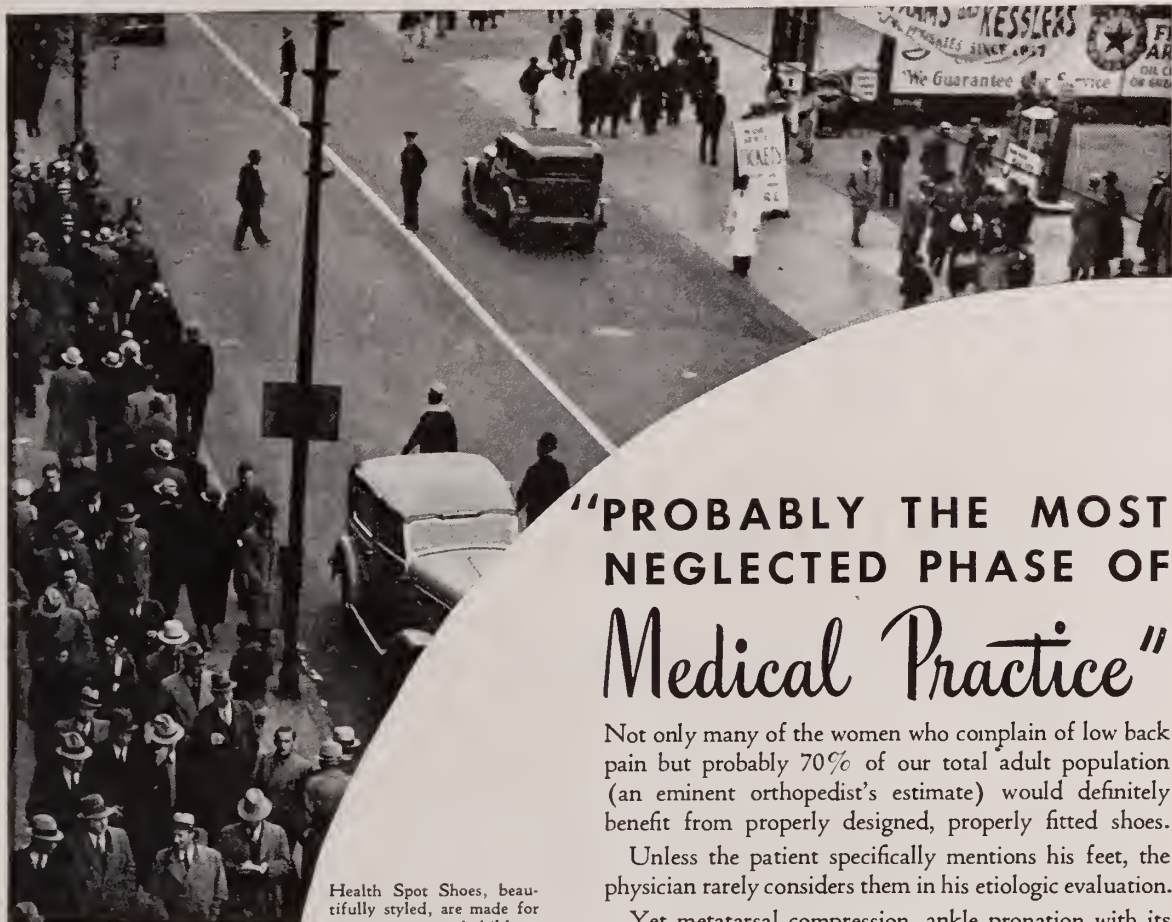
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Book Reviews

GERIATRICS: The Care of the Aged. Malford W. Thewlis, M.D., The C. V. Mosby Company, St. Louis. Price \$6.00.

Geriatrics is a relatively new specialty in medicine, and it is one which is becoming more popular each year. The first edition of this book was published in 1919, while this, the third edition, was published only a few months ago. With an ever increasing number of people living in the older age brackets in this country, the work is most timely, and should be welcomed by many practitioners.

The author has divided his subject into five sections:

1. General considerations.
2. Miscellaneous medical problems.
3. Infectious diseases.
4. Non-infectious diseases.
5. Pathologic conditions in old age.

Each of these sections is divided into separate interesting chapters, well covering the many problems of the care of the aged. Special chapters are the contributions of specialists, as "Care of The Teeth" by Herschel S. Glick, D.D.S., "The Eye," by A. Ray Irvine, M.D., "Deafness" by Harold R. Mulligan, M.D., "Tuberculosis" by LeRoy S. Peters, M.D., and "Mathematical Angle in Surgery" by J. Norton Nichols, M.D.

This interesting volume should appeal to most men who give any care to those in the aged groups.

DR. COLWELL'S DAILY LOG FOR PHYSICIANS.

Colwell Publishing Company, Champaign, Illinois. Price \$6.00.

The "Daily Log" for 1942 is similar to those presented in previous years to make the keeping of financial records easier for the physician. Daily pages for the names of patients, services rendered, charges made, receipts, etc., are given, then at the end of each month, the business summary and the grand totals can be forwarded to the business summary of following months.

With the use of the "LOG" the physician can keep records of his expenses, itemizing them, to make the ideal record for computing income tax at the end of the year. Personal account records, surgical, narcotic

and social security tax records, etc., have been added to increase the value of the "LOG".

The company also has several types of clinical and ledger records, case record cards, and appropriate file envelopes which will be of interest to many physicians, and which may be procured by writing to the Colwell Publishing Company.

DISEASES OF THE EYE, A Manual for Students and General Practitioners. By Charles H. May, M.D., with the assistance of Charles A. Perera, M.D. William Wood and Company, Baltimore. Price \$4.00.

This is the seventeenth edition of this ever popular book, which was first presented by Dr. May in 1900.

Many sections have been completely revised, and the newer therapies in eye diseases are included.

An interesting appendix is added in this 1941 volume giving the ocular requirements for admission to the army, navy, marine and aviation services of the United States.

The book is intended primarily for the student and general practitioner, but it will likewise be a valuable addition to the library of the specialist who has been familiar with the previous editions.

ESSENTIALS OF DERMATOLOGY. By Norman Tobias, M.D. J. B. Lippincott Company, Philadelphia. Price \$4.75.

This book was written with the idea of placing a volume on the subject on the market for the general practitioner and the medical student, who too often do not have reliable information at hand on this important phase of medicine.

The field of dermatology is well covered and the outline of contents in the front of the book adds to its value as a handy reference work.

There are 143 good illustrations covering most of the conditions briefly described. Controversial matters are well eliminated, and the book is filled with information which should aid both the general practitioner and the medical student.

The treatment and choice of the subjects presented
(Continued on page 32)



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BOOK REVIEWS (Continued)

are well outlined, which increases the usefulness of this book in the field for which it was intended.

SULFANILAMIDE AND RELATED COMPOUNDS IN GENERAL PRACTICE, By Wesley W. Spink, M.D., The Year Book Publishers, Inc., Chicago. Price \$3.00.

In view of the fact that the drugs in the sulfonamide group have become popular within the past five years, and when we realize that new members of this group are being brought out constantly, it is somewhat confusing to many physicians as to the real value of these drugs, their indications and contraindications, dosage, etc.

Many warnings have been issued relative to the occasional dangerous reactions, their effect on the hematopoietic system which adds materially to this confusion and causes a considerable degree of hesitancy on the part of physicians to use these drugs. This group is, however, generally recognized as being among the most valuable addition to modern therapy in recent years.

In this book the author has assembled much data in such a manner that it is of great interest to the average medical practitioner. The author lists many diseased conditions in which members of the group are of inestimable value, and others in which the value is doubtful.

He also gives an opinion as to the member of the group which should be used, then a third list of dis-

eases and conditions in which the sulfonamides are of no therapeutic value.

The book is well written and gives much information on the subject which should be of much value to physicians.

GENITAL FUNCTIONS AND HORMONAL REGULATION. Clinical and Experimental Investigations. By Bernhard Zondek. The Williams & Wilkins Company, Baltimore. Price \$4.50.

In 1935 the author wrote a book on "Hormones of the Ovary and the Anterior Pituitary Lobe." This new book, published just recently, reflects the progress of his investigations since that time. Many investigations have been made by the author in his work at the Hebrew University and the University Hospital in Jerusalem, and these are presented in detail in this monographic work.

In 1927, Ascheim and the author reported on the occurrence of estrogenic hormone in the urine of pregnant women, and the following year the author reported on the extraction of estrogenic hormone from pregnancy urine. This resulted in the development of a number of preparations by various chemists throughout the world which are now used extensively in the field of medicine.

In this book the author refers to the presence of some estrogenic substances in nature as determined through his many investigations. Experimental and clinical investigations of the use of estrogenic and

(Continued on page 34)

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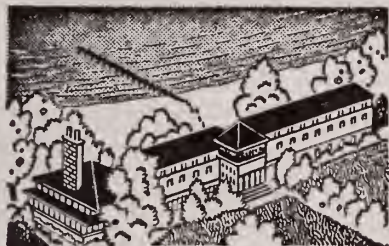


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BOOK REVIEWS (Continued)

androgenic hormones are considered in some detail. The effects of long treatment with high dosage are well brought out.

The author discusses the fate of the sex hormones in the organism, and describes the mechanism of menstruation. Many case histories are added to increase the interest of the reader, and to give a working knowledge concerning these newer endocrine products.

The book should be of particular interest to the gynecologist, obstetrician, and the research worker, although many men in the field of medicine could get much valuable and frequently sought information through its use.

MICROBES WHICH HELP OR DESTROY US. By Paul W. Allen, Ph.D., D. Frank Holton, Ph.D., Louise Allen McBee, M.S. The C. V. Mosby Company, St. Louis. Price \$3.50.

This book serves well the purpose for which it was written. The material compiled, was assembled with the layman in view, and it brings into play most of the common communicable diseases to which we are heir, and presents them in a most interesting, and understandable manner.

The author has in mind the education of the public, and the development of a "microbe consciousness" among laymen. He stresses the fact that not all microbes are dangerous, and that on the contrary, the majority are rather helpful to humanity.

While this book is recommended primarily for the layman, and for the student, it is probable that many members of the medical profession would enjoy reading it.

HANDBOOK OF COMMUNICABLE DISEASES, By Franklin H. Top, A.B., M.D., M.P.H. The C. V. Mosby Company, St. Louis. Price \$7.50.

The author has solicited contributions from a group of well known and capable collaborators, physicians and nurses, and as a result, has developed a very comprehensive study of his subject. Dr. C. H. Binford, Passed Assistant Surgeon of the United States Public Health Service, has contributed a chapter on Leprosy; while Dr. Bruce H. Douglas, Health Commissioner and Tuberculosis Controller of Detroit Department of Public Health, has written of Tuberculosis. Pneumonia is discussed by Gordon B. Myers, M.D., Professor, Division of Medicine, Wayne University College of Medicine; Gonorrhea is discussed by George Sewell, M.D., Attending Urologist, Division of Social Hygiene, Detroit Department of Public Health, while Dr. Loren W. Shaffer has handled the material on Syphilis, Chancroid, and Lymphogranuloma Venereum.

The two nurses asked to contribute to this work discussed Nursing Care and Management of Communi-

(Continued on page 37)



A PLACE IN THE SUN

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cable Diseases in the Hospital, and Management of Communicable Diseases in the Home.

The volume should prove extremely helpful to medical students and nurses, and is a "must" for public health officials and public health nurses.

A MEDICO-LEGAL LAW BRIEF in Relation to Mal-Practice Suits, With Citations. By John Ralph Ballinger, B.S., M.D., Chairman of the Medico-Legal Committee of the Illinois State Medical Society and the Chicago Medical Society. Price \$1.00. The Commercial Art Press, Monmouth, Illinois.

Dr. Ballinger, for many years, has been chairman of the Medico-Legal Committee of the Illinois State Medical Society. In this capacity he has had the unusual opportunity to review many thousands of medico-legal cases. In this little book he has a wealth of material which will be of interest to all physicians who are desirous of evading any mal-practice difficulties.

Dr. Ballinger is interested in the prevention of medico-legal troubles, and devotes quite a little space in his brochure to this subject. During his work in this subject — over a period of 28 consecutive years — he has made notes which he expected some day to publish for the benefit of his fellow practitioners, and this little book is the result.

We would recommend unhesitatingly, this book to any present day practitioner of medicine, and urge him to have it available for study at all times.

PROCTOLOGY FOR THE GENERAL PRACTITIONER.

By Frederick C. Smith, M.D., The F. A. Davis Company, Philadelphia. Price \$4.50.

In view of the fact that the man in general practice is the one who usually discovers lesions in the lower intestinal tract, the book has been prepared primarily for the general practitioner.

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ABDOMINAL SURGERY OF INFANCY AND CHILDHOOD. By William E. Ladd, M.D., F.A.C.S., Robert E. Gross, M.D., The W. B. Saunders
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The authors have devoted the major part of their time to pediatric surgery, not to set it apart as a separate specialty, but in order to emphasize the fact that infants and children can obtain improved surgical care if an appropriate number of surgeons in each community will take a particular interest in this field.

The volume is well illustrated with line drawings and cuts, and for the pediatrician and the surgeon, this book should be of considerable importance. Throughout the book the authors emphasize gentleness in examination and gentleness in operating, and stress the disturbed physiology of the patient. Any thoughtful surgeon will realize the importance of this material.

Books Received

The following books have been received for reviewing, and are herewith acknowledged. This listing should be considered as a sufficient return for the courtesy of the sender. Books that appear to be of unusual interest will be reviewed as space permits each month. Readers desiring additional information relative to books listed, may write the Editor who will gladly furnish same promptly.

THE PREMATURE INFANT; Its Medical and Nursing Care. By Julius H. Hess, M.D. and Evelyn C. Lundeen, R. N.; J. B. Lippincott Company, Publishers, Philadelphia. Price \$3.50.

MEDICAL CLINICS OF NORTH AMERICA. September 1941. "Specific Methods of Treatment." W. B. Saunders Company, Philadelphia.

PROFESSIONAL ADJUSTMENTS. By Gene Har-

risson, A.B., R.N., Educational Director, Druid City Hospital School of Nursing, Tuscaloosa, Alabama. The C. V. Mosby Company, St. Louis, Missouri. Price \$2.25.

THE ART AND SCIENCE OF NUTRITION. A Text-book on the Theory and Application of Nutrition, by Estelle E. Hawley, Ph.D., and Grace Carden, B.S., The University of Rochester, School of Medicine and Dentistry, Rochester, N. Y. The C. V. Mosby Company, St. Louis. Price \$3.50.

PRACTICAL METHODS IN BIOCHEMISTRY. By Frederick C. Koch, Frank P. Hixon Distinguished Service Professor of Biochemistry, University of Chicago. The Williams & Wilkins Company, Baltimore. Price \$2.25.

CANCER OF THE FACE AND MOUTH. Diagnosis, Treatment, Surgical Repair. By Vilray P. Blair, M.D., Sherwood Moore, M.D., and Louis T. Byars, M.D., The C. V. Mosby Company, St. Louis.

THE ESSENTIALS OF OCCUPATIONAL DISEASES. By Jewett V. Reed, B.S., M.D., F.A.C.S., and A. K. Harcourt, B.S., M.D., Charles C. Thomas, Publisher. Springfield, Illinois, and Baltimore, Maryland. Price \$4.50.

SHOCK TREATMENT IN PSYCHIATRY; A Manual, by Lucie Jessner, M.D., Ph.D., Resident Psychiatrist, Balldate, Georgetown, Mass.; Assistant in Psychiatry, Beth Israel Hospital, Boston, and V. Gerard Ryan, M.D., Associate Psychiatrist, Elmerest Manor, Portland, Conn.; Assistant in Psychiatry, Harvard Medical School. Introduction by Harry C. Solomon, M.D., Clinical Professor of Psychiatry, Harvard Medical School; Chief of Therapeutic Research, Boston Psychopathic Hospital. Grune & Stratton, Incorporated, New York. Price \$3.50.

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BOOKS RECEIVED (Continued)

MICROBES WHICH HELP OR DESTROY US: by Paul W. Allen, Ph.D., Professor of Bacteriology and Head of the Department, University of Tennessee; D. Frank Holtman, Ph.D., Associate Professor of Bacteriology, University of Tennessee, and Louise Allen McBee, M.S., Formerly Assistant in Bacteriology, University of Texas. The C. V. Mosby Company, St. Louis.

THE 1941 YEAR BOOK OF PUBLIC HEALTH: Edited by J. C. Geiger, M.D., Dr.P.H., Director of Public Health, City and County of San Francisco; Clinical Professor of Epidemiology, University of California; Clinical Professor of Preventive Medicine and Public Health, Stanford University School of Medicine; Lecturer in Preventive Medicine and Public Health, University of Southern California Medical School. Price \$3.00. The Year Book Publishers, Chicago.

IMMUNITY AGAINST ANIMAL PARASITES: by James T. Culbertson, Assistant Professor of Bacteriology, College of Physicians and Surgeons, Columbia University, Price \$3.50. Columbia University Press, New York.

ESSENTIALS OF GENERAL SURGERY: by Wallace P. Ritchie, M.D., Clinical Professor, Department of Surgery, University of Minnesota Medical School. The C. V. Mosby Company, St. Louis, Missouri.

X-RAY THERAPY OF CHRONIC ARTHRITIS: by Karl Goldhamer, Associate Roentgenologist St. Mary's Hospital and Quiney X-Ray and Radium Laboratories; former Roentgenologist at University of Vienna. 131 pages; price \$2.00; Radiological Review Publishing Company, Quiney, Illinois. 1941.

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From their study of 138 cases in which an uninfamed appendix had been removed because of abdominal pain, the authors conclude that "chronic appendicitis" is a clinical entity consisting of recurrent pain in the right lower portion of the abdomen which is usually unrelated to past or present disease conditions in the appendix. However, about three fourths of the patients experienced partial or complete relief from the symptoms that they had before the operation and one fourth remained unimproved or were made worse.

Patients with a long history and those with numerous attacks of pain did not have such a high percentage of good end results as did those with a short history or those with few attacks. Better results were achieved in men than in women. The mortality from the operation is low, but the morbidity (illness)

and the period of incapacity cannot be ignored, the authors say.

"The results described," they declare, "should be regarded as grounds for the adoption of a more conservative rather than a less conservative attitude toward operation for chronic appendicitis."

Elaborating on the poorer results obtained in the group of patients with long histories and numerous attacks, the two men say that those results might be explained by the fact that when a patient complains of "innumerable" attacks for "years" one must be on guard for emotional or mental factors which might influence the picture.

"Appendectomy," they say, "as a form of psychotherapy [mental treatment] is not good treatment. It may be also that those persons with a short history or with only a few attacks were those with true digestive complaints of obscure nature and that appendectomy was only coincidental with the spontaneous remission of symptoms."

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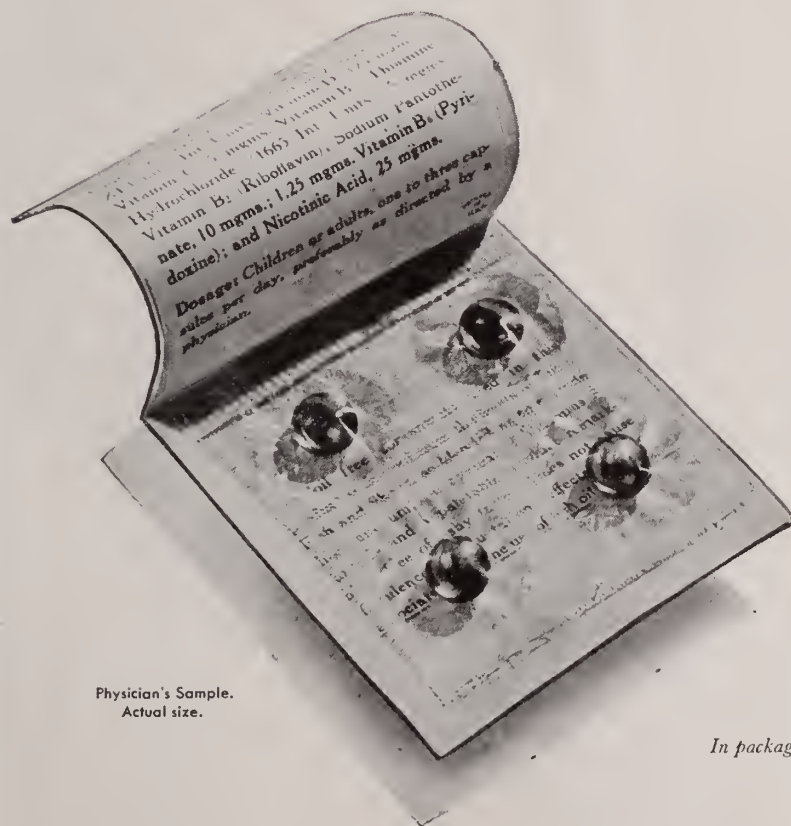
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(Last in a series of six.)

Common problems in the management of peptic ulcer

“What is the safest, quickest method
of controlling simple hyperacidity?”

Simple hyperacidity is quickly, effectively controlled with one or two drams of Amphojel* or a Wyeth's Hydrated Alumina Tablet.

Four striking features of Amphojel, Wyeth's Alumina Gel, are recognized by clinicians:

Amphojel provides prompt relief from pain. It permits rapid healing of the ulcer. It cannot be absorbed and eliminates the hazard of alkalosis. It reduces excess acidity without completely neutralizing the gastric contents.

Amphojel is a valuable adjunct in the treatment of melena and hematemesis when administered by continuous drip.

AMPHOJEL

*Wyeth's
Alumina Gel*



Amphojel, Wyeth's Alumina Gel
Fluid Antacid . . . Adsorbent

One or two teaspoonfuls either undiluted or with a little water, to be taken five or six times daily, between meals and on retiring.
Supplied in 12-ounce bottles

For the Convenience of Ambulatory Patients

Wyeth's Hydrated Alumina Tablets
Antacid

One-half or one tablet in half a glass of water. Repeat five or six times daily, between meals and on retiring.

Supplied in boxes of 60 tablets

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JOHN WYETH AND BROTHER, INC., PHILADELPHIA, PA.

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PREGNANT MARES SERUM HORMONE

The great interest aroused by the hormone of pregnant mares serum centers in its ability to produce follicle stimulation in human beings. More recently it has also been shown by direct histological examination to produce stimulation of the seminiferous tubules in men. It may therefore be said to produce true gonadal stimulation in both sexes.

GONADOGEN IS SUPPLIED IN:

Boxes of six vials, each vial containing 10 Cartland-Nelson units (approximately 200 International units), with six 1 cc. ampoules of sterile physiologic salt solution.

Boxes of twenty-five vials, each vial containing 10 Cartland-Nelson units (approximately 200 International units), with one 30 cc. vial of sterile physiologic salt solution.

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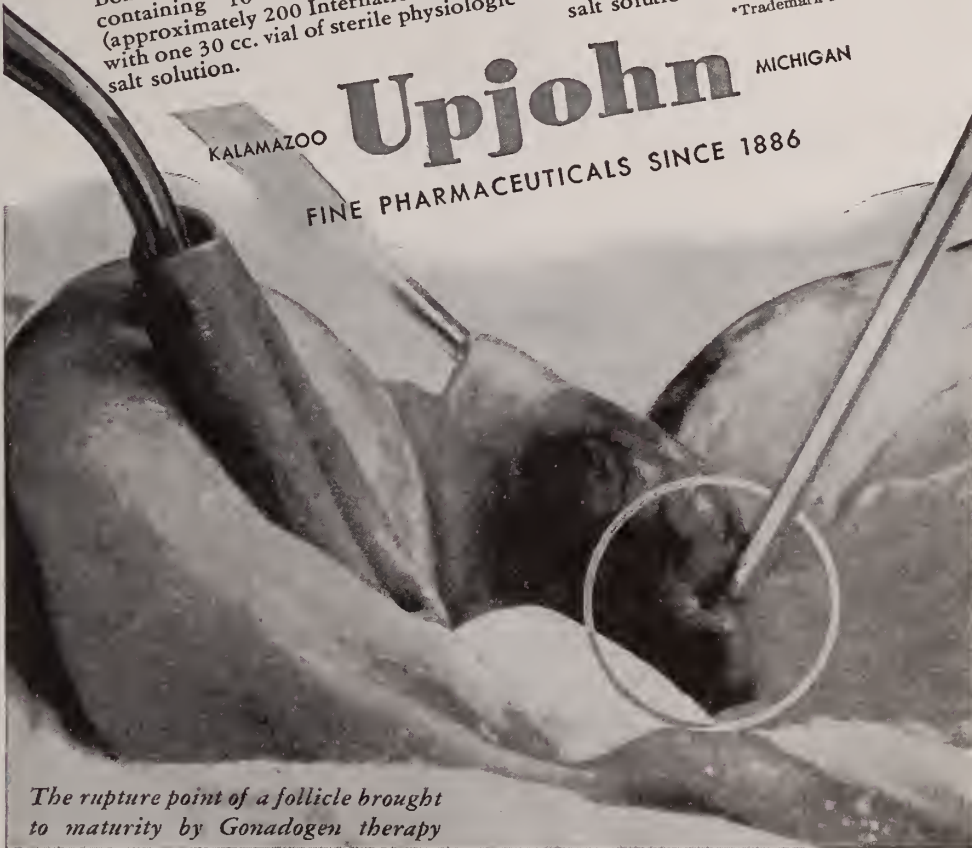
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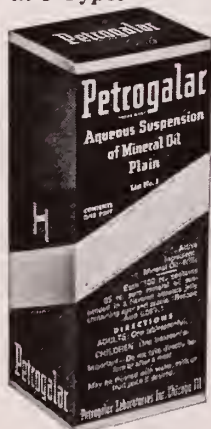
The rupture point of a follicle brought to maturity by Gonadogen therapy



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★ ★ Petrogalar^{*}

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Available at all
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Shut in—No exercise—Appetite off—Sluggish bowel, all suggest the use of Petrogalar to assist Bowel Habit Time.

Petrogalar Plain adds unabsorbable fluid to the bowel content to encourage regular, comfortable elimination by purely mechanical means, free of habit-forming tendencies.

Children and adults alike enjoy the delightful flavor of Petrogalar. It is easy to take, either from a spoon or in water, as desired.

^{*}Trade Mark. Petrogalar is an aqueous suspension of pure mineral oil each 100 cc. of which contains pure mineral oil suspended in an aqueous jelly containing agar and acacia.



The Sickie Has Lost Its Edge

SLOWLY BUT SURELY, MEDICAL SCIENCE IS CONQUERING SYPHILIS

Mapharsen offers a record for effectiveness and safety as an antiluetic which has not been surpassed by any other arsenical since the days of Ehrlich. The proof lies in the more than ten million intravenous injections administered over a seven year period.

Directly spirocheticidal without chemical change within the body, Mapharsen exhibits relatively constant parasitocidal value. It makes possible intensive action against the spirochete with comparatively small doses of arsenic. Untoward reactions are fewer and less severe than those attending use of arsphenamine and neoarsphenamine.

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Mapharsen (meta-amino-para-hydroxy-phenylarsine oxide hydrochloride) contains 29 per cent arsenic in trivalent form. It does not become more toxic in the ampoule, in the solution, in the body, or when exposed to air.

Supplied in 0.04 Gm. and 0.06 Gm. single-dose ampoules, and in 0.4 Gm. and 0.6 Gm. multiple-dose (10 dose) ampoules.

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A product of modern research offered
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Q. Of course, we eat canned vegetables. But just what is their value in a diet?

A. The nutritional value of fresh vegetables varies somewhat with the type of vegetable. The green, leafy, and yellow vegetables are among the best sources of provitamin A. In general, in the amounts usually consumed, vegetables are valuable sources of vitamin C and members of the vitamin B complex. In addition, vegetables contribute to the body's needs for iron and other minerals. Canning retains to a good degree the dietary value of vegetables and makes a wide variety of vegetables available all the year round. (1)

American Can Company, 230 Park Avenue, New York, N. Y.

(1)

1936. Mass. Agr. Expt. Sta. Bull. No. 338.

1937. Chemistry of Food and Nutrition, Fifth Edition, H. C. Sherman, MacMillan, N. Y.

1938. Nutrition Abstracts and Reviews 8, 281.

1939. Food and Life Yearbook of Agriculture, U. S. Dept. Agr., U. S. Government Printing Office, Washington, D. C.



The Seal of Acceptance denotes that the nutritional statements in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

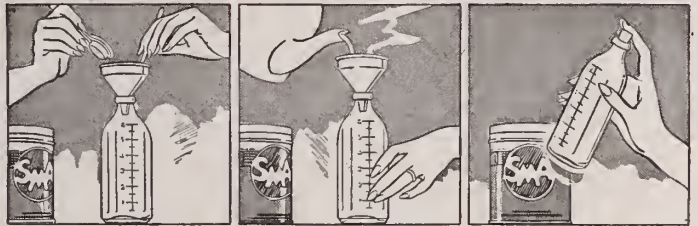
The answer To Your Infant Feeding Problem!

THIS IS WHAT S-M-A IS . .



A scientifically prepared formula for infants deprived of breast milk.

**THIS IS HOW IT IS
PREPARED**



1. Empty one tightly packed measuring cup of S-M-A Powder into bottle.

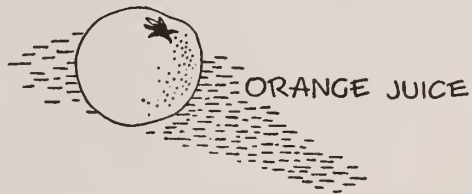
2. Add enough warm, previously boiled water to make one ounce.

3. Cap bottle and shake into solution. Feed at body temperature.

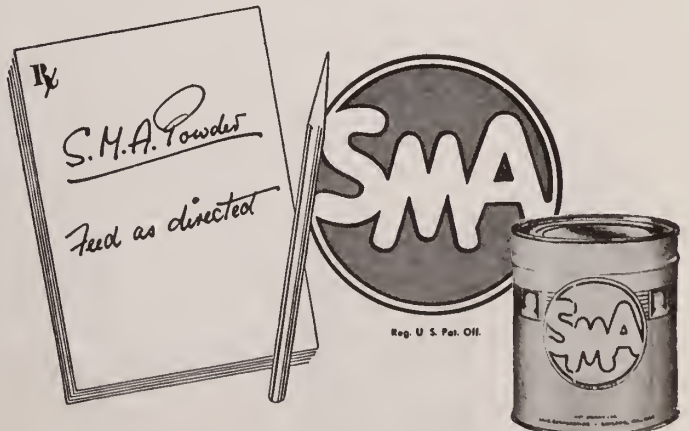
THIS IS THE WAY IT IS FED

The quantity and number of feedings in 24 hours should be the same as that taken by the normal breast-fed infant.

**THIS IS THE ONLY
SUPPLEMENT REQUIRED . .**



AND THIS (in a nutshell) is the Easy, Economical Way used by an ever-increasing number of physicians to insure excellent nutritional results.



KARO FORMULAS FOR PREMATURE AND DEBILITATED INFANTS

DILUTE MIXTURES

Evaporated milk..... 4 ozs.
Water, boiled..... 12 ozs.
Karo..... 1 tbs.
2 ozs. every 3 hrs. for 8 feedings

Lactic Acid milk (dried) 5 tbs.
Water, boiled..... 16 ozs.
Karo..... 1½ tbs.
2 ozs. every 3 hrs. for 8 feedings

CONCENTRATED MIXTURES

Breast milk..... 12 ozs.
Evaporated milk..... 4 ozs.
Karo..... 1 tbs.
2 ozs. every 3 hrs. for 8 feedings

Lactic Acid milk (2%)... 16 ozs.
Karo..... 2 tbs.
2 ozs. every 3 hrs. for 8 feedings

FEEDING PROGRESS

Days of Age	Drams at Each Feeding	Ounces of Feeding per 24 Hrs.
1	1	1
2	2	2
3	4	4
4	6	6
5	8	8
6	10	10
7	12	12

(8 drams = 1 ounce)

Most of the common milk mixtures have been used at various times with some degree of success—evaporated, acid and dried milks, and butter-flour mixtures. Those high in protein and carbohydrate and low in fat are the most suitable in concentrated formulas properly adapted to the limited digestive capacity of the premature. While lactic-acid milk with addition of 7 to 10 per cent by volume of Karo syrup yields twenty-five to thirty calories per ounce, evaporated milk with 5 to 10 per cent added Karo syrup is equally effective.

Processed or acid milks are advantageous because of the fine curds produced, the premature being particularly susceptible to curd indigestion. Nonfermentable carbohydrate in quantities similar to those used in normal feeding of infants may be added to any of these milks. The formula may be concentrated by decreasing the water, or adding powdered protein milk in place of extra amounts of sugar."

KUGELMASS: "Newer Nutrition in Pediatric Practice."

CORN PRODUCTS SALES COMPANY

17 Battery Place, New York City



Prematures usually thrive on Karo formulas



During Pregnancy
AN EASY WAY . . .
A SURE WAY . . .
TO PROVIDE
Calcium

IF PEOPLE consumed enough milk or milk products they should get a sufficient supply of calcium to meet normal requirements. Since many do not it is often advisable to prescribe a diet supplement that will provide this essential element.

This is particularly true during pregnancy when women are often "choosy" about foods and yet must have enough calcium for personal needs plus that required for the growing fetus. Also in the nursing period additional calcium is needed to provide for that lost in the maternal milk.

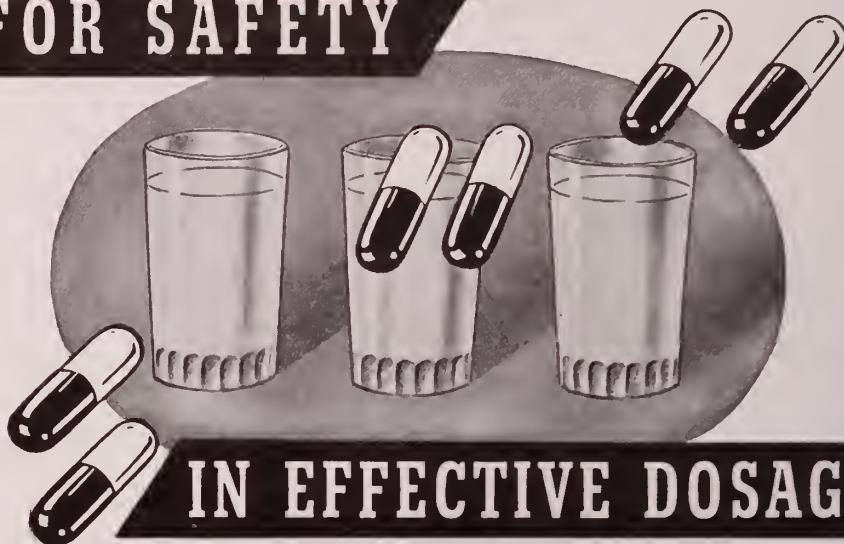
An easy and sure way to provide extra calcium is to prescribe Tablets Dicalcium Phosphate Compound with Viosterol Squibb. The candy-like winter-green flavor is appealing. More impor-

tant, from a therapeutic standpoint, is the fact that they not only supply calcium, but phosphorus and the Vitamin D necessary for proper utilization.

The usual dose for pregnant and lactating women is one or two tablets t.i.d. Each tablet supplies 9 grains dicalcium phosphate, 6 grains calcium gluconate and 660 U.S.P. XI units of Vitamin D. Dicalcium Phosphate Compound with Viosterol Squibb is also supplied in capsules . . . which are useful as a change from tablets when calcium administration must be used over an extended period of time. Two capsules are equivalent in potency to one tablet.

Tablets Dicalcium Phosphate Compound with Viosterol Squibb are supplied in boxes of 51 and 250; the capsules in bottles of 100 and 1000.

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Dicalcium Phosphate Compound with Viosterol
TABLETS . . . CAPSULES

FOR SAFETY**IN EFFECTIVE DOSAGE**

The remarkable record of Ertron therapy in arthritis may be traced not only to its clinical effectiveness but also to the fact that it can be safely administered in large doses.

The distinctive method of activation employed in the manufacture of Ertron provides potency without toxicity. The Whittier Process product is the *only* medication which enables you to Ertronize your patients.

ERTRON in Arthritis

REG. U. S. PAT. OFF.

An exhaustive study of the literature reveals that there is no substitute for Ertron in arthritis. Acting systemically, Ertron improves the joint manifestations and the general symptoms concurrently.

ERTRON *for performance*—**ERTRON** *for safety*

Available in bottles of 50 and 100 capsules.

Complete outline of mode of administration available on request.

Products of Nutrition Research Laboratories are promoted only through the medical profession

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Sustained Action—

Dimenformon Benzoate (*a*-estradiol benzoate 'Roche Organon') releases estradiol in the body in a sustained steady flow closely approximating the estrogenic output of the ovary. This sustained action, together with its superior potency and its economy, makes Dimenformon Benzoate the preferred estrogen in the treatment of menopausal disturbances, hypoovarianism, ovarian failure, and developmental disorders. Dimenformon Benzoate is available in the form of ampuls for intramuscular injection; 600 and 1000 Rat Units, boxes of 6 and 50; 2000 and 6000 Rat Units, boxes of 3, 6, and 50; and 10,000 Rat Units, boxes of 5 and 50. Literature with a more detailed list of indications and dosage schedules will be gladly sent on request.

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DIMENFORMON BENZOATE 'ROCHE-ORGANON'



Vitamin B complex is the modern, scientific substitute for the sulfur and molasses, bitters and tonics of our grandmothers, with the difference that vitamin B is effective in a wide variety of conditions.¹

Wyeth's
REG. U. S. PAT. OFF.
ELIXIR
B-PLEX
REG. U. S. PAT. OFF.

THE NATURAL VITAMIN B COMPLEX

Current medical opinion states that most B deficiencies are multiple and therefore it is essential to treat such deficiencies with the complete B complex rather than with just the known synthesized B vitamins.

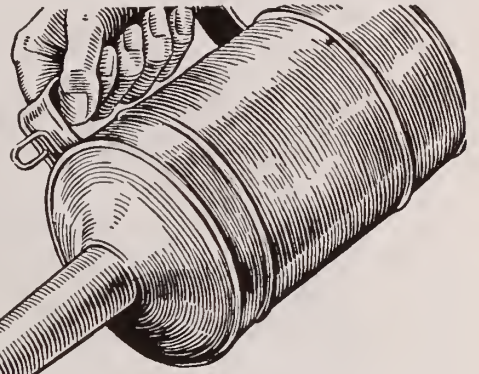
ELIXIR B-PLEX is a palatable elixir of yeast concentrate. It is a natural source of the water-soluble active constituents of a potent brewer's yeast containing the unidentified fractions as well as the known factors of B complex.

¹Borsook, H., "Vitamins", Viking Press, 1940.

Write "ELIXIR B-PLEX, Wyeth" for your B avitaminosis cases.

Supplied in eight-ounce bottles.

JOHN WYETH & BROTHER, INC., PHILADELPHIA, PA.



FREEDOM *from* F R I C T I O N

RELIEF from the pain and discomfort of hemorrhoids depends largely upon freedom from friction. That is why Anusol Suppositories contain an ointment base which covers the rectal mucous membrane—a soothing, protective, anti-friction coating that makes possible walking with comfort and easy, painless evacuation of the contents of the rectum.

The improvement experienced from Anusol is genuine. There is no masking of symptoms to impart a false sense of security, because Anusol does not contain narcotic, analgesic or anesthetic drugs. In this manner, rationally and without unfavorable after-effects, Anusol Suppositories provide symptomatic relief in hemorrhoids and other inflammatory rectal conditions.

You may ascertain, to your own satisfaction, the value of Anusol Suppositories by giving them a trial. A supply will be gladly sent on request on your letterhead. Available for prescription in boxes of 6 and 12.

ANUSOL
HEMORRHOIDAL
SUPPOSITORIES



OBSTETRICAL AMNESIA AND SEDATION SMOOTHLY, QUIETLY, SAFELY

'Delvinal' Sodium vinobarbital is supplied in dry-filled, colored gelatin capsules of three strengths:

½ grain (brown) No. 41:
Bottles of 100, 500, and 1000

1½ grain (orange) No. 42:
Bottles of 25, 100, 500,
and 1000

3 grain (orange and brown)
No. 43: Bottles of 25, 100,
500, and 1000

From the mother's first pain, the obstetrician's efforts are directed toward facilitation of labor with a minimum of interference. Satisfactory sedation and amnesia may now be obtained by means of 'Delvinal' Sodium vinobarbital, the sodium salt of 5-ethyl, 5-(1-methyl, 1-butenyl) barbituric acid.

'Delvinal' Sodium vinobarbital has a safe therapeutic index, a moderate duration of action, and seldom produces preliminary excitation. The course of labor is not adversely affected and uterine contractions are not perceptibly diminished. Moreover, the interval between birth and the onset of respiration in the infant has been reported to be less than when other barbiturates are used, and only slightly greater than when no barbiturate is administered.

'DELVINAL' SODIUM VINOBARBITAL

Sharp & Dohme

Perplexities IN PROVIDING SUFFICIENT VITAMIN B *complex*



Planning of diets which provide sufficient amounts of the factors comprising vitamin B complex presents certain difficulties. The quantitative distribution in foods has been rather accurately determined for some of the factors, but regarding others much must still be learned. Moreover, there is an appreciable loss of water soluble factors during cooking.

In view of these and other perplexities, the synthesis and concentration of the various factors of the vitamin B complex group assume particular importance.

Betaplexin—vitamin B complex—is available in several forms. Variations in dosage are made readily and individual tastes are easily satisfied.

BETAPLEXIN

Trademark Reg. U. S. Pat. Off. & Canada

Brand of VITAMIN B COMPLEX

Elixir!

Syrup!

Tablets!

Capsules!

WINTHROP CHEMICAL COMPANY, INC.

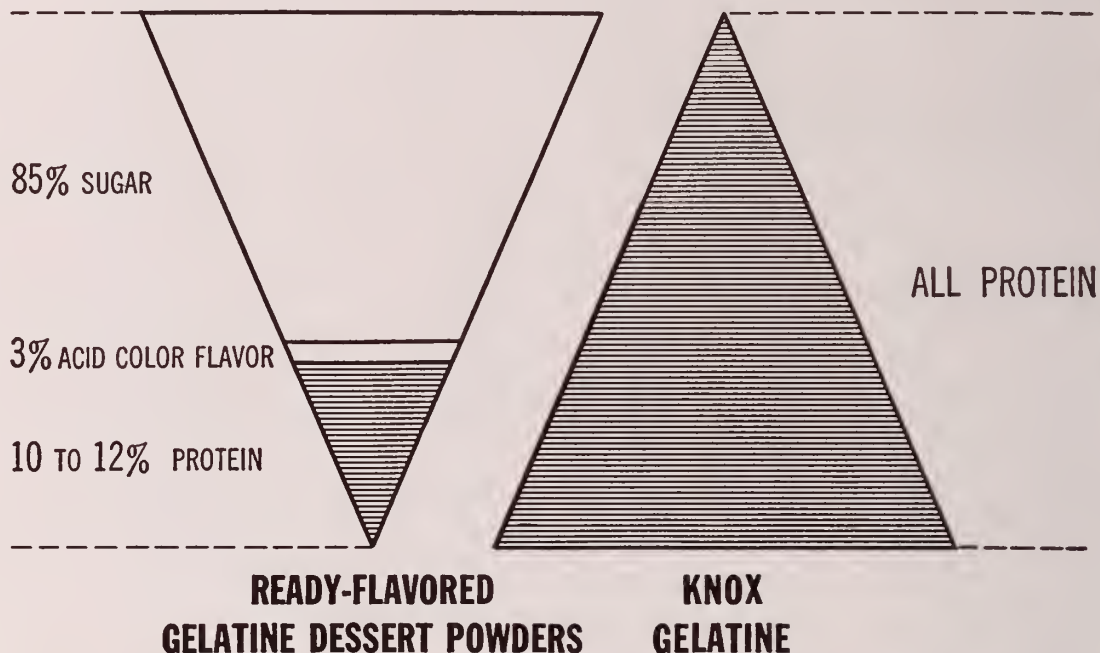
Pharmaceuticals of merit for the physician

NEW YORK, N. Y.

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WHAT IS THE DIFFERENCE BETWEEN GELATINE DESSERT POWDERS AND KNOX GELATINE?



Physicians recognize Knox Gelatine (U.S.P.) as an excellent source of supplementary protein. Perhaps you are already prescribing it to some of your patients. If so, be sure they understand the difference between plain, unflavored Knox Gelatine and ready-flavored gelatine dessert powders.

Gelatine dessert powders are 85% sugar, only 10% to 12% gelatine. Knox Gelatine is *all protein*. Among its 15 amino acids are 7

of the 10 considered "essential." It contains absolutely no sugar or other substances to cause gas or fermentation. It is manufactured under rigid bacteriological control to maintain purity and quality.

Your hospital will procure Knox for your patients if you specify it by name.

For amino acid analysis and information regarding the protein value of Knox Gelatine, use coupon below.

KNOX GELATINE (U.S.P.)

IS PLAIN, UNFLAVORED GELATINE—ALL PROTEIN

Send This Coupon for Useful Dietary Booklets



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LESS THAN HALF THE WATER CONTENT



"WHERE constipation was the only finding, there was present no mucus in the majority of cases and so of necessity an average of *less than one-half the normal water content*."*

Hydrophilic in its action, the hemicellulose, Mucilose, helps to correct constipation by bringing ingested "bound-water" to the dehydrated stool.

NOTE: The increase in fluidity produced by Mucilose was found to be nearly double that of tragacanth preparations.**

By thus restoring normal fecal consistency,

it becomes possible to restore normal peristalsis.

Therefore, for the corrective relief of bowel stasis, prescribe

MUCILOSE

Does not interfere with vitamin absorption, does not tend to leak. No allergic manifestations have been observed from its use.

*Water Absorption from the Colon and its Relation to Motility: Bonoff, K. M., Cal. & West. Med., 51:154-156 (Sept.) 1939.

**Colloid Laxatives Available for Clinical Use: Gray, H. and Tainter, M. L., Jour. D. D., 8:130-139 (April) 1941.

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Please send me a clinical supply of Mucilose.

Name.....M.D.

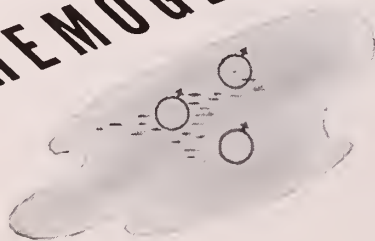
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● When iron reserves are depleted and the daily intake is low, help build a normal blood picture with the aid of Hematinic Plastules.*

This modern therapy provides soluble ferrous iron in a well tolerated, easily assimilated form. Small doses effect a prompt improvement in most cases of iron deficiency and secondary anemia.

When you think of iron—

R_x HEMATINIC PLASTULES PLAIN

Suggested dosage—1 T. I. D. after meals.
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HEMATINIC PLASTULES with LIVER CONCENTRATE

Suggested dosage—2 T. I. D. after meals.

BOTTLES OF 50 AND 100

* REG. U. S. PAT. OFF.

THE BOVINE COMPANY

8134 MCCORMICK BOULEVARD • CHICAGO, ILLINOIS

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AYE, and if you're canny and thrifty and value-wise, you'll be pleased to know that—dollar for dollar—you won't find a better x-ray value than the latest G-E radiographic and fluoroscopic x-ray unit: Model R-38!

Because the R-38 will produce the finest radiographic results possible with apparatus of this calibre, you will diagnose easily and quickly. And because straight-line transformer calibration and precision-type control let you

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Sturdily constructed and scientifically designed, this unique combination unit will give you long life and economical operation. It will make you proud to be an R-38 owner, it's so dignified and impressive in appearance. Its moderate price, moreover, will enable you to save without sacrificing fine-quality results.

Hoot mon, it's the x-ray value of a lifetime, so dinna' delay in sending in the coupon!



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Please send complete information about the new G-E Model R-38 Combination X-Ray Unit.

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The ethical relationship which exists among physicians has its counterpart in the Lilly policy of close co-operation with the doctor. Distribution of information concerning Lilly Products is restricted to the medical and allied professions.

GELSEALS MULTICEBRIN

(Pan-Vitamins, Lilly)

One gelseal contains a daily prophylactic dose of *all* the better known water-soluble and fat-soluble vitamin fractions. The dose of Gelseals 'Multicebrin' may be increased for those patients with definite signs of multiple vitamin deficiency. Supplied for the physician's prescription in bottles of 30 and 100 gelseals.

ELI LILLY AND COMPANY

The Illinois Medical Journal

December 1941

VOL. 80, NO. 6

Official Journal of the Illinois State Medical Society

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Editorials

THE PRESENT STATUS OF BLOOD PLASMA THERAPY

At the 1941 annual meeting of the American Medical Association in Cleveland, one of the most popular sections of the vast scientific exhibit hall was that portion allocated to the dissemination of knowledge pertaining to the preparation of blood plasma and its present day need. The more popular methods of drying plasma were shown, as well as the methods used in storing the finished product for subsequent use.

Some months ago an appeal was received in this country for plasma for Britain and large quantities of dried plasma were sent across the ocean for emergency services in the war zones.

The Surgeon General of the United States Army has recently advised the American Red Cross that 100,000 pints of plasma are needed by the Army to meet immediate needs. This need, General Magee said, is not a project to collect and store blood for future use in case of war. It was also stated that our Navy likewise needs 100,000 pints of plasma for immediate use.

In the event of war it is quite obvious that immense quantities of blood plasma would be needed. The American Red Cross is planning for a marked increase in their blood donor facilities; whereas blood donations are now being made in seven cities, the Red Cross in the immediate future, will have twenty-two local chapters engaged in this activity.

Up to this time, through the Red Cross there

has been only one laboratory processing the donated blood, although it has been announced that arrangements have been made whereby seven laboratories will soon be used. The laboratories will do this processing on a non-payment basis as the Government pays only for the cost of the processing, and the Red Cross pays for the collection and transportation of blood to the processing laboratory.

An interesting story on the use of plasma was recently released, relative to the treatment of a sailor severely injured in the torpedoing of the U.S.S. Kearny. The blood plasma was transported by plane, dropped in the sea, recovered, resterilized and administered to the injured sailor who is now convalescing in an Iceland hospital. Blood plasma has likewise been used by the Army during the recent maneuvers in the south.

The use of preserved blood for transfusion dates back to the first World War, and was first reported in English literature in 1918. In 1936 following months of experimentation, the use of cadaver blood was reported in Russia, and it was stated that fewer reactions were experienced than when blood from living donors was used.

During recent years the establishing of blood banks in many hospitals has been increasingly popular, and the storage of blood for emergency use in such hospitals, has resulted in the saving of many lives. Naturally the delay in procuring suitable donors, matching and cross matching blood, serological tests, etc., was obviated through this immediate availability.

Plasma is essentially the liquid portion of the blood separated without clotting, while serum is the liquid portion remaining after clotting has taken place. Plasma is a liquid solution of three important proteins, albumin, globulin, and fibrinogen. The total protein content per 100 cc of blood is from 6.5 to 8.5 gms. The blood plasma used in emergency work may be of two types, the wet or the dry preparations. Although wet plasma can be transported some distance and be used over a much greater period of time than is the case in the use of blood bank preparations of citrated blood, dry plasma obtained by one of the several drying processes, may be used over an indefinite period by merely dissolving the dried plasma in distilled water. The wet plasma may be used as such or may be diluted with saline or glucose solutions.

Blood plasma is considered the ideal fluid for the maintenance of blood volume, for it has been conclusively shown that colloidal osmotic pressure is in no way dependent on the cellular content of the blood. Consequently in cases with sudden lowering of blood pressure, plasma seems to be the ideal preparation to be used in this emergency.

Each month new uses for blood plasma transfusions have been reported in medical literature. These uses range from immediate shock from any cause to secondary hemorrhage, extensive burns, various cardiac conditions, and severe hydration. Recent literature contains many instances in which blood plasma transfusions have been used in a number of types of blood dyscrasias where serious reactions have been experienced through the transfusion of whole or citrated blood, with most satisfactory results.

It is quite probable that within a short period of time, in every community physicians will be urged to assist the American Red Cross in collecting blood to be sent for processing to some designated laboratory. Many red blooded Americans will no doubt be willing to do their bit in acting as donors. Physicians will procure the desired blood from them, and then the processors will finish the job, and deliver the dried plasma to those Governmental Agencies to be used in the present emergency. In the event of war many hundreds of thousands of units will be desired, and no doubt will be made available within a reasonable time.

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State Society will pay no bills for legal services except those contracted by the Committee. Notify the Chairman at once. Do not employ attorneys.

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Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is \$3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. \$4.00 per year for all foreign countries included in the postal union. Canada, \$3.50. Single current copies, 50 cents.

The use of blood plasma for shock and for many other conditions is a valuable contribution of medical science and shows once more that the medical preparedness efforts are indeed along many lines.

CIVILIAN DEFENSE

Through the office of Civilian Defense the government is urging all communities to set up immediately, local Civilian Defense Units to be prepared in case of an emergency, to render all possible assistance to civilians who may be injured in any manner in the event of war.

Among the many important considerations is the development of local emergency medical service. Among the early duties of the medical profession in this work is the spreading of knowledge of first aid as widely as possible through competent instructors qualified by the American Red Cross. Physicians in every community should register with the local Red Cross Chapter as instructors, and should use the "Instructors Outline" for the standard 20 hour course as prepared by the American Red Cross in collaboration with the Medical Division of the Office of Civilian Defense and published by the American Red Cross. Upon completion of this course, participants will be entitled to receive the appropriate First Aid Certificate of the American Red Cross, and will be entitled to wear the insignia which has been developed for this purpose.

Another booklet entitled "Advanced First Aid for Civilian Defense" has been prepared by the Red Cross and the Medical Division which is intended for the use in instructing the medical and nursing personnel of emergency medical field units and for the training of Air Raid Wardens and members of other enrolled groups of the Civilian Defense Corps.

All physicians, and especially those who are members of Emergency Field Units should familiarize themselves with the first aid methods well outlined in this booklet. Those who are members of Emergency Field Units should register with the local Red Cross Chapter so that they can serve as instructors to both student and graduate nurses, as well as Nurses' Aides and other non-professional members of their Unit, and other hospital employees.

The Local Civilian Defense Corps is under the

administrative authority of the local Director of Civilian Defense, and in each community there should be a local Chief of Emergency Medical Service, whose duties are:

1. To determine the scope of the activities of all official and voluntary organizations which are to participate in the emergency medical program of civilian defense, to integrate these organizations into comprehensive local programs, and to assist them in expanding activities to the limit of their resources in personnel and equipment.

2. To assist hospitals in the locality to organize, equip and train Emergency Medical Field Units as outlined in Medical Division Bulletin No. 1, "Emergency Medical Service for Civilian Defense."

3. To inspect and locate sites for the establishment of Casualty Stations.

4. To make a spot map of the locality, indicating the locations of hospitals, appropriate sites for Casualty Stations, depots for storage of stretchers, blankets, and collapsible cots, and the location of rescue squads. The map should indicate the number of Emergency Medical Squads in each hospital. Copies of the map should be supplied to Control Centers, Police and Fire Departments, Health Department, local Red Cross Chapter, State Defense Council, Regional Director, Regional Medical Officer, and to all cooperating hospitals.

5. To plan and establish adequate transportation service for casualties and medical personnel in consultation with local government departments, American Red Cross and voluntary agencies.

6. To arrange with the local Control Authority for field drills of Emergency Medical Units and Rescue Squads in collaboration with police and fire auxiliaries, disaster relief and canteen services of the Red Cross, ambulance transport service, and other civilian defense units, and to supervise such drills.

7. To make an inventory of hospital beds in the locality and of the possibilities for emergency expansion of the bed capacity.

8. To assist the authorities charged with preparing plans for evacuation in making an inventory of hospitals, convalescent homes, sanatoria, hotels and other structures within a radius of 50 to 100 miles which might be used as base

hospitals to which patients in city hospitals could be evacuated.

9. To assist the local Central Volunteer Bureau in establishing courses for volunteers in the field of health, medical care, nursing and related activities.

10. To stimulate recruitment of volunteers for Nurses' Aid Courses of the American Red Cross, assist the local Red Cross chapter in establishing Training Centers for volunteer Nurses' Aides at appropriate hospitals and assist the Red Cross placement bureau in placing Nurses' Aides in appropriate hospitals, clinics, health departments and field nursing services after completion of training.

11. To stimulate and guide extension of First Aid training courses as widely as possible among the local population through the American Red Cross and other official and volunteer agencies.

12. To stimulate and guide industrial plants, business establishments and government bureaus in the locality in the training and organization of effective First Aid Detachments among the employees.

13. To collaborate with state and local health departments and through them with the Regional Sanitary Engineer in a comprehensive program for the protection of the community against emergency sanitary hazards.

14. To collaborate with local and state Defense Councils, Office of Civilian Defense, Federal Security Agency, Children's Bureau and other local, state and federal authorities in the preparation of plans for evacuation, with particular attention to the medical needs of the population under such circumstances.

15. To keep the community and particularly the members of the health and medical professions, and the participating official and voluntary organizations informed of the plans and activities of the local Emergency Medical Services.

It is the desire of the Government through the Office of Civilian Defense, to be thoroughly prepared for any emergency in time of war; therefore, once more the medical profession is called upon to render service along the line of emergency service. The "Medical Preparedness" section of the Journal of the American Medical Association, under date of November 22, 1941, gives much information on the equipment and operation of Emergency Medical Field

Units, including the desired equipment for a First Aid Post, and for a Casualty Station.

Volunteers are to be recruited in every community to carry out protection against military danger, and protection of the social structure of the community. It is urged that a Civilian Defense Volunteer Office be set up in every community as a community enterprise, established, operated and directed by citizens of the locality. They are requested to recruit men and women volunteers for civilian defense, to recommend them to local defense activities and to those community agencies in which their services are needed.

The American Red Cross is participating in these preparations, and will be ready in all communities to render every possible aid.

We heartily recommend that every physician in Illinois as well as throughout the nation, read regularly the articles appearing under the heading "Medical Preparedness" in each issue of the Journal of the American Medical Association.

"HISTORY OF MEDICAL PRACTICE IN ILLINOIS"

A few years ago, the Illinois State Medical Society published the History of Medical Practice in Illinois, with the late Lucius H. Zeuch as editor for the volume. Subscriptions were received prior to the publication of this book, at \$10.00. It was soon learned that it would be impossible to put all available historical data in one volume, and the Society decided that eventually a second volume would be published, and there would be no additional cost to subscribers.

Soon after the first volume appeared, Dr. Zeuch died, and Dr. Charles J. Whalen, then editor of the Illinois Medical Journal was selected as editor for the proposed second volume. On account of unsatisfactory conditions, it was decided to hold the second volume in abeyance until some future date. Since the death of Dr. Whalen, it was deemed advisable to withhold further action on account of the present emergency.

The Society has on hand at this time, a number of copies of the first volume edited by Dr. Zeuch, which contains much valuable medical historical data, well illustrated, bound in cloth and in perfect condition, which may be procured

while the supply lasts, for \$5.00. Physicians or libraries desiring to procure a copy of this unusual book, may send their remittance to the Secretary, and a copy will be forthcoming, post paid within a few days.

Address: Harold M. Camp, M.D., Secy.
Illinois State Medical Society,
Monmouth, Illinois.

PAPERS FOR THE 1942 ANNUAL MEETING

The 1942 annual meeting of the Illinois State Medical Society will be held in Springfield on May 19, 20, 21. Plans are now being made for the scientific programs to be presented before the individual sections and for the general meetings.

Physicians desiring to present papers at this meeting should communicate as early as possible with the officers of the section before which they desire to present a paper. Each section has a chairman and a secretary one residing in Cook County and the other down-state and it is advisable to keep this in mind when writing the section officers.

On account of the fact that the number of papers to be presented before each section will be limited, it is desirable that the best possible program be developed, and one which will appeal to the physicians as a whole rather than to a few members of individual specialties.

In writing to the proper section officer, it is advisable to give the title of the paper you desire to present, then give either an abstract of the paper or other information concerning it, so that the officers will be better able to judge the merits of the paper in considering the advisability of scheduling same on their respective programs.

The personnel of the several section officers is as follows:

Section on Medicine

F. Garm Norbury, Chairman, Jacksonville
M. Herbert Barker, Secretary, 700 N. Michigan Ave., Chicago

Section on Surgery

Loyal Davis, Chairman, 54 East Erie Street, Chicago

J. C. Thomas Rogers, Secretary, Urbana

Section on Eye, Ear, Nose and Throat

Clifton Turner, Chairman, Peoria

G. Henry Mundt, Secretary, 30 N. Michigan Ave., Chicago

Section on Public Health and Hygiene

Walter C. Earle, Chairman, Champaign

Henry C. Niblack, Secretary, 54 West Hubbard St., Chicago

Section on Radiology

E. E. Barth, Chairman, 303 East Superior St., Chicago

Cesare Gianturco, Secretary, Urbana

Section on Pediatrics

Craig D. Butler, Chairman, 715 Lake Street, Oak Park

A. J. Fletcher, Secretary, Danville

Section on Obstetrics and Gynecology

Milton E. Bitter, Chairman, Quincy

Clyde J. Geiger, Secretary, 4753 Broadway, Chicago

Owing to the fact that these section officers responsible for the preparation of the programs for each of the scientific sections are desirous of completing their list of speakers as soon as possible, it is advisable for all members of the State Medical Society to contact the proper section officer as early as possible in order that they may have the opportunity of getting you on the program for the 1942 annual meeting.

REPORT OF EDUCATIONAL COMMITTEE

June — November, 1941

CHICAGO HISTORICAL SOCIETY

Doctor John Nagel very thoughtfully obtained the 50 Year Button from the family of the late Doctor Arthur Brumback and a brief history of his life. The Button and biographical sketch have been accepted by the Chicago Historical Society as a part of their medical collection. It seems very appropriate that one of the 50 Year Buttons of the Illinois State Medical Society should be a part of the permanent exhibit of the Chicago Historical Society.

EXHIBITS

The Committee had an exhibit in connection with the Annual Meeting of the Illinois State Nurses Association at Urbana in October. About 1,000 nurses attended the Convention and most of them visited the booth of the Committee.

As a result of the exhibit 150 new names

were added to our mailing list to receive the "Do You Know" column.

SPEAKERS' BUREAU

90 — Physicians were scheduled to address the following types of lay organizations: Rotary, High School assemblies and vocational guidance classes, Parent Teacher Associations, Church groups, Junior Women's Clubs, Women's Clubs, District federation meetings, Women's Auxiliaries to county medical societies, Premedic clubs, teachers' institutes, boys' clubs, business and professional women's clubs, Associations of University Women, Home Bureau, Kiwanis.

RADIO

50 — Radio talks were given over WJJD and WAAF. A special broadcast was arranged for the American Academy of Otolaryngology over station WGN.

Mrs. Carolyn Kehl, wife of Dr. S. C. Kehl of the Englewood Branch, has again volunteered to help us with our programs over WAAF. Her broadcasts with members of the Chicago Medical Society were begun on November 1st and will be presented every Saturday afternoon at 1:30. From the number of comments received by the office of the Committee, these programs are highly popular with our listening public.

Copies of radio programs are being sent to several downstate counties for use over local stations.

PACKAGE LIBRARIES

The package library service seems to fill a real need in the state and during the past three months special material has been prepared for doctors requesting help on the following topics:

Socialized medicine	History of Medicine
Accidents and First Aid	Nutrition and Health
Amnesia	Heart Disease
Athlete's Foot	Nervousness
Medical Legislation	Cancer
Progress of Medicine	Development at Adolescence
Health Fallacies	Infant Mortality
Mental Hygiene	

"LEAVE 'EM WHERE THEY LIE" Articles

Through the courtesy of the Texas State Medical Association the Committee was given permission to use their material on first aid in highway accidents. The Educational Committee, the Chicago Orthopedic Society and the State Highway Division went over the material before it was released.

80 — newspapers carried the articles weekly.

Letters were received from several safety engineers in large industrial companies asking for copies of the articles. A number of state medical societies also asked for permission to use the series in their own states. These latter requests were referred to the Texas State Medical Association.

"DO YOU KNOW" Column:

Articles written and approved on the following subjects:

A Warm Month Disease	Early Colds
Swimming for Fun	The March Is On
Building Health on Vacations	Rheumatic Fever
Ouch My Feet	October Days
Going to School	Physical Therapy Today
Burns Are Dangerous	The Doctor & Selective Service
How Do You Sleep?	Common Sense Diet
Your Baby is an Individual	Role of Medicine in National Defense

42,830 — Do You Know articles sent to lay list: health chairmen, farm advisers, home bureaus, nurses, libraries (No schools or teachers included in the summer mailings).

The mailing list has been brought up to date. Those on the mailing list were contacted and asked to send a card indicating if they wished to continue receiving the material. During the month of November 2,836 were listed. The comments are very interesting and in order to show how the material is used, some of them are herewith given:

District No. 5 W.P.A. — "We duplicate the bulletins on our duplicator and place them in the hands of the teachers in the Adult Education Division of the Education Project of the Works Project Administration."

Health Chairman P. T. A. "Please send me 250 copies each of your bulletins to distribute at our meetings every month."

Young Mothers Club — "We have enjoyed your health bulletins and would like to have 35 to 40 copies to pass out at our regular meetings."

Y.M.C.A. "If it is concurrent with your policy, will you please put on your bulletin mailing list the Directors of Health and Physical Education of all our Chicago Y.M.C.A.s"

School Nurse — "I would appreciate receiving these leaflets regularly for use on our health bulletin board."

H. S. Council Chairman — "Thank you so much for the packages of "Do You Know" sent for distribution at our District 25 Conference. The subjects were just what we need and were welcomed with much interest and enthusiasm as your literature always is."

Primary Teacher — "Please send me your bulletins "Safe at Home" and "How Is Their Vision" "Burns" and any other safety material helpful for teaching safety in primary grades."

County Nurse — "I would like my name put on your mailing list for the health bulletins on various health topics. I am planning to teach home nursing classes in the local high school and would appreciate this material to help me."

County Nurse — "I am writing to request special articles issued by the Illinois State Medical Society on communicable diseases or other pertinent subjects that may be reprinted in the local papers or used as basis for health talks to P.T.A. or Community meetings."

Civic Group — "I am chairman of the Health and Sanitation Committee of the North Side Civic Committee and would like to know if you will place me on the mailing list to receive the health articles and any other health education material released by the Educational Committee."

Oak Park High School — "Your publications under the heading of "Do You Know" which are sent periodically have come to our attention and are a matter of great interest. Any material available to high schools concerning health and applicable to our 2,000 girls would be greatly appreciated."

Gillespie, Illinois — "I am a teacher of Naturalization and Literary classes under W.P.A. I have used the "Do You Know" bulletins as lesson material in my classes. I would like to have extra copies to use as actual reading in some of my classes. If possible, send me 10 copies each month."

University of Illinois — Director of Physical Education receives 20 copies each mailing.

Teachers College — "Use 38 copies of each issue for senior college students in health education class."

Have requests from health teachers in New Brunswick, Canada; Indiana; Ohio, Louisiana, Minnesota, Washington, Kentucky, Michigan.

Farm Adviser — "I find your bulletins very helpful in my work."

Home Adviser — "We use many of the releases as a part of our regular study program."

Teacher Waller High School — "We read them in classes. We post some of them."

President Woman's Club — "These bulletins are read at each club meeting throughout the club year."

Colored High School — "May I please have 6 copies — one for each of our health teachers."

President Woman's Club — "I find that these bulletins are very helpful in Parent Teacher and Club work. They are splendid."

Northeast Junior College, Monroe, Louisiana — "I find this information very valuable. Thanks."

P.T.A. Council President — "I think these bulletins are marvelous."

Adviser — I have kept a year of these for future reference. They are fine."

Southern Illinois Normal Univ. Coach & Director Physical Education — "I certainly want to stay on your mailing list for I think the bulletins are very valuable."

The principal of a Chicago grade school is being furnished with stencils of our health articles which the students mimeograph and take home. There are about 1,000 children in this school.

A physician from South Rhodesia, South Africa asked to have copies of our material which he could mimeograph and give to the 500 students in his school.

AID TO COUNTY SOCIETIES

- 128 — Notices for Hancock County
- 223 — Notices for Henry
- 144 — Notices for Effingham
- 603 — Notices for LaSalle
- 71 — Notices for Stephenson County
- 75 — Notices for Knox County
- 46 — Notices for Randolph County
- 193 — Notices for Bureau County
- 100 — Notices for Perry County
- 120 — Notices for Franklin County
- 55 — Notices for DeKalb County
- 75 — Notices for Monroe County

PUBLICITY FOR MEDICAL MEETINGS

- 119 — Releases for LaSalle County
- 62 — Releases for Effingham County
- 22 — Releases for Warren County
- 29 — Releases for Knox County
- 39 — Releases for Henry County

- 22 — Releases for Stephenson
- 26 — Releases for Randolph
- 75 — Releases for Bureau
- 526 — Releases for Tri-County meeting
- 110 — Releases for Chicago Medical Society
- 4 — Releases for North Shore Branch
- 27 — Releases for Franklin
- 30 — Releases for Monroe
- 71 — Releases for 1st Dist. Post-Graduate Con.
- 79 — Releases for 5th Dist. Post-Graduate Con.
- 131 — Releases for 4th Dist. Post-Graduate Con.
- 88 — Releases for 8th Dist. Post-Graduate Con.
- 111 — Releases for 10th Dist. Post-Graduate Con.
- 84 — Releases for 7th Dist. Post-Graduate Con.
- 75 — Releases for 2nd Dist. Post-Graduate Con.
- 331 — Notices for Maternal Welfare Meeting — 9th & 10th Districts

NEWSPAPER SERVICE:

6,249 — Releases to newspapers using health columns furnished by the Educational Committee.

SCIENTIFIC SERVICE & POST-GRADUATE EDUCATION

During the summer a new list of speakers available for scientific meetings was prepared and printed and sent to presidents and secretaries of county medical societies. This is the most comprehensive list the Committee has assembled and many favorable comments have been received from other State Medical Societies and from the A. M. A.

During these months the Committee assisted with the following 112 scientific programs:

- June 5 — Perry — Robert W. Bartlett — "Use of Pentothal Sodium — Clinical Application"
- June 6 — Madison — J. J. Donahue — "Diseases of the Gastro-Intestinal Tract"
- June 10 — McLean — Charles H. Phifer — "Medical Economics"
- June 12 — St. Clair — Charles H. Phifer — "Jaundice"
- July 7 — Hancock — E. L. Hill — "Polio-myelitis"
- September 4 — 9th District Post Graduate Conference — 5 speakers
- September 9 — Effingham — Richard Ahroon — "Chronic Rheumatic Diseases"
- September 12 — Jersey-Greene — Carroll W. Stuart — "Surgical Problems of the Head and Neck"
- September 18 — Monroe — W. C. Scrivner — Obstetrics

- September 21 — Maternal Welfare program, Springfield — 13 speakers.
- September 25 — LaSalle — Herbert E. Schmitz — "Diagnosis & Treatment of Cancer of the Breast and Female Pelvis"
- September 25 — LaSalle — Henry L. Schmitz — "Diagnosis & Treatment of Lymphoblastomas & Leukemias"
- September 25 — LaSalle — Peter A. Nelson — "Diagnosis & Treatment of Carcinoma of the Oral Cavity & Gastro-Intestinal Tract"
- October 2 — Perry County — Edwin F. Hirsch — "Value of Pathologist in Cancer Diagnosis & His Function in the Hospital"
- October 3 — Madison County — George L. Drennan — "Deafness in Childhood"
- October 6 — Hancock County — E. T. Hoyt — "Sulfanilamide"
- October 7 — Knox County — M. H. Streicher — "Diseases of the Colon & Rectum"
- October 7 — Knox County — W. A. Gustafson — "Diagnosis & Treatment of Ruptured Intervertebral Discs"
- October 7 — Vermilion County — Italo F. Volini — "Pneumonia"
- October 8 — 1st Councilor District Post-Graduate Conference — 5 speakers
- October 9 — Champaign County — Hugo O. Deuss — "Newer Aspects of Chronic Pulmonary Tuberculosis"
- October 14 — Peoria — Charles B. White, St. Louis — "Use of Blood Plasma in Surgery"
- October 14 — Rock Island — Frederick Merri-field — "Related Problems of Physicians, Surgeons & Dentists"
- October 14 — Rock Island — K. M. Manougian — State Medicine
- October 14 — Tazewell County — Richard F. Herndon — "Nephritis"
- October 14 — Effingham — Lewis T. Gregory — "Gynecological Problems and Their Treatment"
- October 15 — DuPage — J. H. Hutton — "Practical Points in Endocrine Diagnosis & Therapy"
- October 16 — Jackson — W. C. Scrivner — "Obstetrical Hemorrhage"
- October 16 — Monroe County — G. C. Otrich — "Do's and Don'ts in Ear Nose & Throat Treatments for the General Practitioner"

October 16 — 5th District Post-Graduate Conference — Lincoln — 5 speakers

October 23 — 4th District Post-Graduate Conference — Moline — 5 speakers

October 24 — Cook County Physicians Assoc. — J. H. Hutton — "Practical Points of Endocrine Therapy & Diagnosis"

October 29 — Will-Grundy — F. E. Senear — "Eczema, Eczematoid Eruptions"

October 30 — LaSalle — James T. Case — "Gastrointestinal Diagnosis"

October 30 — Randolph — C. E. Lane — "Common Skin Diseases"

October 30 — Stephenson — William Johnson — "Surgical Management of Peptic Ulcer"

October 30 — Franklin — Edward W. Canady — "Medical Management of Hypertension"

October 30 — Randolph — Richard Paddock — "Management of Breech Presentation"

November 6 — 8th Post-Graduate Conference — 7 speakers

November 6 — Southern Illinois Medical — 12 speakers

November 10 — Winnebago County — S. A. Portis — "Modern Concepts in the Treatment of Diseases of the Liver"

November 11 — Bureau — H. M. Hedge — "Diseases of the Skin"

November 11 — Kankakee — I. F. Volini — "Sulfanilamide Group of Drugs"

November 11 — Lake — G. J. Musgrave — "Sinus Diseases & Preventive Methods of Treatment"

November 12 — McDonough — F. G. Norbury — "The Nervous Patient in General Practice"

November 12 — Will-Grundy — James H. Hutton — "Recent Progress in Endocrinology"

November 13 — Livingston — Reno Rosi — "Pneumonia"

November 13 — Tri-County — 4 speakers

November 18 — Tazewell — B. Lyman Stewart — "Office Urology"

November 18 — DeKalb — Reno Rosi — "Pneumonia"

November 18 — DeKalb — James A. Conner — "Diagnosis & Treatment of Communicable Diseases of Childhood"

November 18 — 7th Councilor District — 4 speakers

November 26 — Franklin County — Samuel D. Soule — "The New Estrogenic-like synthetic stilbestrol"

November 27 — Monroe — Edward W. Canady — "Medical Management of Hypertension"

November 27 — 2nd Councilor Post-Graduate Conference — 5 speakers.

Respectfully submitted,
Jean McArthur

DO YOU KNOW

That Rocky Mountain spotted fever is not confined to any particular section of the United States? That it is spread by the wood tick and that it is a highly fatal disease?

That it was first known as the bitterroot disease, named for the Bitterroot Mountain area of western Montana where the disease was prevalent as early as 1880?

That it is called spotted fever because the victims of the disease have a spotted red rash, irregular in size and shape appearing on ankles, wrist and head after three days of illness, and spreading over the entire body as the disease advances?

That other symptoms of the disease are drowsiness, neck stiffness, high temperature and moderately rapid pulse?

That in 1937 in Iowa there were two unusual outbreaks of the disease and that cases usually develop in early June when the wood tick or common dog tick begins its season of activity?

That the hazards of Rocky Mountain spotted fever may be reduced by observing the following precautions?

Keeping on a lookout for ticks in summer camps, on picnic grounds, on hiking trips and on farms.

Making people "tick conscious" so that during the tick season they will inspect themselves morning, noon and night for evidence of ticks, and remove any before they have a chance to attack and engorge themselves.

Dipping dogs during the tick season.

Using spotted fever vaccine, which however is expensive, and best reserved for use by those constantly exposed to the hazards of the disease.

"WAR GAMES"

How does the wife of a doctor on active duty spend her time?

Lieutenant Benjamin R. Gutov, Detroit physician now serving with the 102nd Medical Regiment, had to face this question last month. While participating in the Tennessee maneuvers, he received a letter in the form of a jig-saw puzzle. It was from Mrs. Gutov. After spending more than an hour piecing it together, the lieutenant read:

"Don't work too hard!"

Correspondence

1942 ANNUAL MEETING COMMITTEES

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OFFICE OF CIVILIAN DEFENSE

Washington, D. C.

November 15, 1941

Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense, Washington, D. C., has announced the appointment of a subcommittee of the Advisory Board of the Medical Division, Office of Civilian Defense, to prepare recommendations on protective procedures for hospitals in the event of belligerent action.

Dr. Robin C. Buerki, dean of the Graduate School of Medicine and director of hospitals of the University of Pennsylvania, Philadelphia, a member of the Medical Advisory Board, is chairman of the new subcommittee and the members are:

Dr. Willard C. Rappleye, commissioner of hospitals, New York City.

Dr. Asabel J. Hockett, superintendent of Touro Infirmary, New Orleans.

Dr. Anthony J. J. Rourke, medical superintendent of Stanford University Hospitals, San Francisco.

Dr. Joseph Turner, director of Mount Sinai Hospital, New York City.

Dr. Huntington Williams, commissioner of health of Baltimore.

The subcommittee held its first meeting at the Hotel Commodore, New York, November 8. With Dr. James M. Mackintosh, former Chief Medical Officer of the Scottish Ministry of Health, as a guest to advise the group, measures for preventing or minimizing damage to buildings, handling of casualties, evacuation, provision and protection of supplies, and training of personnel for specific duties in case of bombing were discussed in detail. The basis for discussion was a study made by a committee of the American Hospital Association on physical defense of hospitals, of which Dr. Hockett is chairman. It is expected that a report will be issued jointly by the hospital association committee and the committee representing the Office of Civilian Defense.

Dr. Mackintosh also conferred with the staffs of the medical and civilian protection divisions of the OCD at the Washington headquarters, November 7, describing in detail Britain's organization of its protective services, its early mistakes and the measures taken to correct them.

The basic organization for rescue work in a given area consists of three essential groups with a central control, police, rescue and fire services, ARP control and medical service.

One of the early mistakes was the belief that it was imperative to have first aid workers on the scene of a bombing immediately. Bitter experience showed that injured persons were usually buried under rubble and glass of their homes and that hours of work by the demolition and

rescue squads were often necessary before first aid could be given.

Dr. Mackintosh emphasized the necessity for a central ambulance control. Ambulances are dispatched only by the central control and are not allowed to move from a bombed area until routes to hospitals have been surveyed. To stop "panic calls" from individuals, private telephones are now cut off the moment an air raid warning sounds.

First aid posts, in addition to their obvious function of caring for the injured, are invaluable as rendezvous for rescue workers, physicians and nurses as well as the general population, who may become lost in the blackout, frightened, choked and blinded by dust, he said. In the first aid post the workers can clean up, have a cup of tea and return refreshed to their activities.

APPOINTMENT OF REGIONAL
MEDICAL OFFICERS

The Office of Civilian Defense has organized on a regional basis, with regions corresponding to the U. S. Army Corps Areas. A regional director has been appointed for each region with headquarters in the same city in which the corps area headquarters are located. Regional medical officers have been appointed as follows:

First Civilian Defense Region: Dr. Allan M. Butler, 101 Milk Street, Boston.

Second: Dr. H. Van Zile Hyde, 111 Eighth Avenue, New York City.

Third: Dr. W. Ross Cameron, 400 Cathedral Street, Baltimore.

Fifth: Dr. William S. Keller, 425 Cleveland Avenue, Columbus, Ohio.

Eighth: Dr. Witten B. Russ, Majestic Building, San Antonio, Texas.

Ninth: Dr. Wallace Hunt, 233 Sansome Street, San Francisco.

These physicians have been commissioned as senior surgeons in the U. S. Public Health Service.

ASSISTANT CHIEF NURSES NEEDED
FOR ST. ELIZABETHS HOSPITAL

The Federal Civil Service Commission has announced an examination for the position of Assistant Chief Nurse for St. Elizabeths Hospital, Washington, D. C. The salary is \$2,000 a year. Other vacancies in positions requiring similar qualifications in Washington, D. C., only will be filled from this examination.

St. Elizabeths Hospital provides treatment for mentally ill members of the U. S. military service and for certain civilians. The duties of Assistant Chief Nurses include the instruction and discipline of staff and student nurses and attendants. They will also serve as instructors

in nursing arts, including psychiatry, in the school of nursing.

To qualify, applicants must meet the requirements in education and experience prescribed by the Nurses' Examining Board of the District of Columbia. This includes completion of a full course in an accredited school of nursing requiring a residence of at least 2 years in a hospital having a daily average of 50 or more patients. Applicants must have a bachelor's or master's degree with major study in advanced nursing education from a college or university of recognized standing. In addition to these educational requirements, appropriate experience in the nursing field is required, including instruction in the nursing arts. No written test will be given for these positions.

Applications must be on file with the U. S. Civil Service Commission, Washington, D. C., not later than December 30, 1941. Announcements and application forms may be obtained at any first- or second-class post office or from the Commission's Washington office.

WOMAN'S AUXILIARY ACTIVITIES

The Woman's Auxiliary to Vermilion County Medical Society opened their fall activities Sept. 2nd with a dinner meeting in the Hotel Wolford.

Among 20 to attend the initial meeting were two new members, Mrs. H. G. Stoll, Danville, and Mrs. Herman Secunda, Westville.

Mrs. C. L. Bennett, who is serving as chairman of the Hygeia Committee and also of the annual club party, appointed her committee to assist in the party planning. This event has become the major activity of the auxiliary, the Vermilion County organization having received first national prize for the last two years.

Feature on the program was Mrs. Solomon Jones, who gave a review of the recent article "Defense" in Hygeia. She also reported on the Post Convention meeting.

On Oct. 7th a short business session was held at which time Mrs. C. L. Bennett gave a final report on the Auxiliary's game night. Clear receipts reached \$130.81. This money will be used to purchase Hygeia Magazine which will be placed in the city schools and public reading places.

The Woman's Auxiliary to the Chicago Medical Society held its Public Relations Meeting on Nov. 5th at the Museum of Science and Industry.

The Address of Welcome was given by Dr. James P. Simonds, President The Chicago Medical Society followed by a few words of greeting by Major Lenox R. Lohr, President, Museum of Science and Industry.

Guests of Honor, Mrs. Harry Otten of Springfield, President of the Woman's Auxiliary to the Illinois State Medical Society. Dr. James P. Simonds, Dr. H. Prather Saunders, Dr. Oscar Hawkinson.

Dr. Eben Carey, Dean, Marquette University, Milwaukee, and Curator of the Medical Exhibits gave a lecture on "Medical Science and the Public."

A conducted tour followed the lecture and tea was served.

Mrs. Harry Otten, President

Mrs. Charles W. Stigman,
Press & Publicity.

WINTER MEETING

The winter meeting of the Iowa and Illinois Central District Medical Association will be held Wednesday evening, December 10 at the Blackhawk Hotel in Davenport, Iowa.

At 7:45 P. M. Dr. G. A. Sywassink of Muscatine, Iowa will give a short address on "Comments on Thyroid Surgery."

The guest speaker of the evening will be Dr. Louis J. Karnosh of Cleveland, Ohio, associate professor of Nervous and Mental Diseases, Western Reserve University School of Medicine in Cleveland, Ohio, who will speak on "Radical Methods in the Treatment of Melancholia."

The scientific program will be preceded by a dinner at 6:30 P. M.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION

The Nineteenth Annual Meeting of the American Orthopsychiatric Association, an organization for the study and treatment of behavior and its disorders, will be held at the Hotel Statler, Detroit, Michigan, on February 19, 20, and 21, 1942. Copies of the preliminary program will be sent upon request. A registration fee will be charged for non-members.

UROLOGY AWARD

"The American Urological Association offers an annual award 'not to exceed \$500.00' for an essay (or essays) on the result of some specific chemical or laboratory research in Urology. The amount of the prize is based on the merits of the work presented, and if the committee on Scientific Research deem none of the offerings worthy, no award will be made. Competitors shall be limited to residents in urology in recognized hospitals and to urologists who have been in such specific practice for not more than five years.

Essays shall be in the hands of the Secretary, Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., on or before April 1, 1942."

ANNUAL PRIZE COMPETITION OPEN TO NON-MEMBERS

The Chicago Surgical Society announces that competition for the 1942 Annual Prize is now open to young men devoting themselves to surgery in Cook County and who are not members of the Society. A prize of \$250.00 will be awarded for the most meritorious original investigation in one or both of the fields of experimental and clinical surgery. The paper submitted should be of original work which has not been printed or presented previously. References to the literature, illustrations, and the general makeup of the paper should conform to the accepted standards of medical writing. The manuscript should bear no identification marks of individual, hospital, or institution, but should be accompanied by a sealed envelope bearing on its outside the title of the paper and containing within it the name and address of the author. The Society reserves the right to make no award if work of merit is not submitted. Manuscripts should be sent to the Secretary of the Chicago Surgical Society, 54 East Erie Street, Chicago, not later than March 1, 1942.

LIBERALIZATION OF CIVIL-SERVICE EXAMINATIONS FOR NURSES

In January of 1941, the Commission announced an examination (Announcement No. 38) to secure Public Health Nurses (\$2,000 a year) and Graduate Nurses, General Staff Duty (\$1,800 a year) for the Government service. A revised edition of the examination has just been issued in which for Graduate Nurse, General Staff Duty, the time limit for graduation from a school of nursing has been increased to fifteen years. In the original announcement, graduation within the past twelve years was required.

The new examination Announcement No. 38-Revised, provides that persons over the age limit and those who cannot meet the physical requirements may apply for the examination *if they meet all other requirements of the announcement*. The examination announcements for Junior Graduate Nurse, \$1,620 a year (Announcement No. 88 of 1941) and Junior Public Health Nurse, \$1,800 a year (Announcement No. 103 of 1941) have also been amended to allow over-age applicants and those who cannot meet the physical requirements to apply for these examinations. Persons applying under these provisions, if found otherwise eligible, may be appointed for temporary duty ONLY, for the duration of the emergency in the absence of qualified eligibles.

Persons who have been rated eligible under Announcement No. 38 issued in January, 1941, need not file new applications under Announcement No. 38-Revised. Applications for the

positions of Public Health Nurse, Graduate Nurse, Junior Graduate Nurse, and Junior Public Health Nurse may be filed until further public notice. Applicants will not be given a written test but will be rated on their education and experience.

Announcements and application forms may be obtained at any first-or second-class post office or from the Civil Service Commission, Washington, D. C.

UNITED STATES CIVIL
SERVICE COMMISSION

RED CROSS BLOOD COLLECTIONS TO GO ON NATION-WIDE BASIS AT REQUEST OF ARMY AND NAVY

At the request of the Surgeons General of the Army and Navy, the American Red Cross will extend its blood collection program to key metropolitan cities on the Pacific coast and in the midwest. This was announced at national headquarters by James L. Fieser, vice chairman in charge of Red Cross domestic operations, who said negotiations were now under way with large chapters, which because of the geographical location, size and facilities, were equipped to be included in the program.

At present seven eastern cities are engaged in the project. Collections are shipped by refrigerated express to a processing depot at Philadelphia where blood is reduced to dry plasma form for use by the Army and Navy. Arrangements are being worked out with biological laboratories in the midwest and Pacific areas for processing blood collections received from the cities to be added, Mr. Fieser said.

Plans for extending the collection program were announced following completion of a "pilot" project in which blood donors of the seven eastern cities filled an initial request of the Navy for 15,000 donations. It was explained that most of these, after being processed and hermetically sealed, already have been placed aboard U. S. fighting ships engaged in the Atlantic sea patrol.

"The present emergency requires that the Red Cross take every necessary step to provide as soon as possible an adequate supply of plasma for the Army and Navy," Mr. Fieser said. "Some 200,000 donors will be needed to fill current requests of our military and naval forces. Extension of the collection program will enable the Red Cross to meet these requests.

"Those who have given their blood can have the satisfaction of knowing that it is today on the high seas safeguarding the lives of our sailors. Donations in increasing numbers not only will enable the Red Cross to complete its purpose of supplying adequate supplies to our naval vessels, but also will make it possible to furnish

medical units of the Army the amounts requested."

The first step in widening the blood collection program will be to set up collection depots at Los Angeles, San Francisco, Chicago, Detroit, St. Louis, Cleveland, Indianapolis, Cincinnati and Pittsburgh. Those cities now engaged in the program include New York, Boston, Philadelphia, Baltimore, District of Columbia, Buffalo and Rochester (N.Y.). As the program gains momentum, other cities will be added.

Biological laboratories undertaking the processing of the blood have agreed to do so on a non-profit basis, Mr. Fieser said.

NEW SEARLE LABORATORIES BEING BUILT AT SKOKIE, ILLINOIS

The well known manufacturing house of G. D. Searle & Company, Chicago, announces that work is under way on the building of their new laboratories and plant which are located on the outskirts of Chicago in the Skokie district.



It is stated that all of the new ideas gained in recent years in the building of pharmaceutical laboratories will be utilized in the building of this new plant, in addition to many incorporated through the firm's policy of the most exacting scientific control in every phase of manufacturing of their drugs.

Completely modern in design, it will not be a factory-like building, but a scientific laboratory for the development and production of pharmaceutical products under the most modern scientific and hygienic conditions. The building will be a reinforced concrete, flat-slab, set-back type, three stories high with a basement, containing 1,500,000 cubic feet. The exterior will be modern and streamlined in design with continuous windows protected by projecting metal fins which help to carry out the streamline design. The entire building will be completely air-conditioned.

Following the company policy of maintaining close personal interest in the well-being of all associated with it, there is to be a recreation center with lounges, restrooms, meeting and dining rooms for all members of the organization. The laboratory atmosphere is to be carried out throughout the building except in the auditorium, which is designed not only for meetings of the staff and workers, but also for clinical meetings and demonstrations to visiting physicians and interested medical groups.

The second floor of the building will be devoted to the Searle research laboratories which will be fitted out with the most modern equipment, devices and apparatus known to the sciences of chemistry and pharmacy.

Adjacent to the laboratories will be the scientific library, one of the most extensive in the country, with the walls paneled in white oak and facilities for the filing and indexing of journals, books and papers in all languages.

G. D. Searle & Company has been established for more than fifty years, and its business is devoted exclusively to providing drug preparations to be used by the medical profession. Mr. John G. Searle, the president of the company, is the third member of his family to manage the business, founded by his grandfather in 1888.

Nurses and interns risk tuberculous infections in a general hospital which does not accept known cases of pulmonary tuberculosis. This is indicated by the change in their reactions to the Mantoux test. As this change is not shared to a comparable degree by the students of the same age group in the same community, there is reason to suspect that patients with whom they are in contact may be spreaders of the disease. Obviously, patients with open tuberculosis who gain admittance to a general hospital bring their infection with them and add to the hazards of their new environment. M. E. Barnes, M.D., Jour. of Amer. Med. Assn., Nov. 23, 1940.

A fertile field for the tuberculosis germ is found in workers over thirty years of age. Although the disease is recognized as an occupational hazard of the "dust trade" employees, the occurrence of the disease in other trades is wide enough to warrant the X-ray examination of all workers in all fields of industry. Kendall Emerson, M.D.

The ex-patient must always be considered a possible source of infection in tuberculosis and he must never be told he is safe. J. G. Bohorfoush and Pauline Michael, Amer. Rev. of Tuber., Oct., 1940.

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

The medical profession has been more or less continuously denounced as being selfish and obstructive to plans of meeting the social and economic changes, under which we practice. This idea has been fairly well sold to the public by various forms of propaganda. Also there are many of our members who are inclined to feel that perhaps such may be the case, and who feel that our national organization particularly has not been active in this important medical economics.

For this reason, it might be well to briefly review the record of the American Medical Association and see just what it has done and what it now is doing for us. It is important to know, in better detail, just what its record is, so that we can meet and refute these denouncements with better grace and greater skill whenever we meet them, in private or in public.

At the first meeting of the American Medical Association in 1847, almost a century ago, it favored public health movements and has repeatedly urged and continuously advocated a National Department of Health with a physician as head who will be a member of the president's cabinet. In 1910-1916, when agitation for sickness insurance first began in the United States, it made the most complete survey and study of the subject ever made up to that time, and based on these findings, passed this resolution in 1920: "Resolved, That the American Medical Association declares its opposition to the institution of any plan embodying the system of compulsory contributory insurance against illness, or any other plan of compulsory insurance which provides for medical service to be rendered contributors or their dependents, provided, controlled, or regulated by any state or the federal government."

In 1921, the House of Delegates of the

A. M. A. passed this resolution: "Resolved, By the House of Delegates of the American Medical Association that it approves and endorses all proper activities and policies of state and federal governments directed to the prevention of disease and the preservation of the public health." And in 1922, this resolution defining "State Medicine" was passed: "The American Medical Association hereby declares its opposition to all forms of "State Medicine" because of the ultimate harm that would come thereby to the public weal through such form of medical practice.

"State Medicine" is hereby defined for the purpose of this resolution to be any form of medical treatment, provided, conducted, controlled, or subsidized by the federal or any state government, or municipality, excepting such service as is provided by the Army, Navy, or Public Health Service, and that which is necessary for the control of communicable diseases, the treatment of mental disease, the treatment of the indigent sick, and such other services as may be approved by and administered under the direction of or by a local county medical society, and are not disapproved by the state medical society of which it is a component part."

Following the industrial depression of 1929, numerous plans for medical services to depression stricken people sprung up so rapidly that the House of Delegates in 1934, in order to guide, assist, and encourage the organization, adopted the following ten principles:

1. All features of the medical service plan will be under the control of the medical profession.
2. No third party will come between the patient and his physician; the responsibility for the character of the medical service will be borne by the medical profession.

3. Subscribers will have free choice of a legally qualified doctor of medicine.
4. The method of giving service will retain a permanent, confidential, "family physician" relationship between the physician and the patient.
5. Medical service is considered separately from hospital service.
6. The cost of the payments for medical services will be borne by the patient in accordance with his income status.
7. There is no connection between the medical service and cash benefits for the patient.
8. All legally qualified doctors of medicine who wish to give services under the conditions established will be included.
9. The group to be served will be below the "comfort level" standard of income.
10. There will be no restrictions on treatment or prescribing which are not formulated and enforced by the organized medical profession.

The bureau of medical economics of the A. M. A. has done a tremendous amount of important and helpful work by its researchs, which are at the disposal of those who are interested, which clearly show that it has been alive, active, and progressive in its attempts to analyze and meet the changing social and scientific conditions under which the art of medicine is practiced. Through it the A. M. A. has always favored and urged public health activities, national as well as local. There is no organization in our country that can equal the record of the A. M. A. for efforts to secure good medical care for the under privileged and to keep away the dirty fingers of political dispoilers.

The American Medical Association does not oppose the principle of insurance when it is used to meet the costs of medical care where there is no interference with the quality of the service. Its department of medical economics has given more study to schemes for compulsory sickness insurance (State Medicine) over a longer period of time than those individuals and institutions who favor or urge their adoption in the United States. It has repeatedly shown that medical service is something that can not be purchased

wholesale as a commodity and then distributed as such at retail. Further, it has shown that when or where such is attempted, medical services offered become inadequate, some forms of sickness are increased, the control of disease is interfered with, and mortality rates are not reduced.

I think it is true that many of us considered medical economics nothing more than better office business methods, and improved collection systems, or methods of obtaining payment of bills for pauper relief. And that, in a broader sense, medical economics as related to our changing social and economic conditions, was something like the war, far away across the Atlantic, remote and peculiar to continental Europe.

Among the first plans for Voluntary Prepaid Medical Service to be launched in this country, and which have continued in successful operation, are the Medical Service Bureaus of Oregon and Washington. The workmen's compensation laws in these states, unlike other states, permitted a deduction from the employees' wages to provide medical services for compensable injuries and diseases. This brought into existence private corporations who made contracts with employers providing medical services for employees entitled to compensation. To give such medical services these corporations hired or made contracts with physicians, hospitals, druggists, and nurses. They added hospital and medical care for non-compensable accidents and disease and built up a business that competed seriously with the private practice of medicine and began to develop abuses and evils under their contract practice that led to the development of Medical Service Bureaus by County Medical Societies.

Last August it was my privilege to be in Bellingham, Washington where I visited the offices of Physicians and Dentists, Incorporated. This is a Medical Service Bureau located in the county seat of Whatcom County, the most northwest county in the United States. It began its existence in 1932 as a credit rating and collection service bureau under the able leadership of Robert C. Elting, who continues to serve as business manager.

Its functions were gradually extended until now it provides for prepaid group medical serv-

ice, first aid service, hospitalization, nursing, x-ray service, ambulance service, gives credit ratings, and collects bills for its members, and maintains a day and night telephone service.

The cost to the members is \$2.00 per month membership fees. Operating or administrative expense, on the basis of total income, is between 7% and 8% for 1940. In this connection, it is interesting to note that the administrative expense of the Multnomah Medical Service Bureau, in Portland, Oregon, for 1940 was 8.94%.

The population of Whatcom county is 55,000. The number of physicians is 55. All are members of this Medical Service Bureau except two. All hospital staffs are members. Through this Medical Service Bureau 3,000 old age assistance medical cases are handled. The state of Washington, following the passage of its Old Age Assistance Act, instead of setting up its own administrative unit in Whatcom county, used the set up of the medical service bureau on a percentage basis. Twenty-five hundred indigents are handled through the office of the bureau. The group prepaid medical service takes care of approximately 1500 families. The Farm Security Administration also operates its plan through the offices of the bureau.

It is interesting to note that a great percent of the population of Whatcom county continues to receive its medical service under the conditions of private practice. The physicians participating in the activities of this medical service bureau are not entirely dependent on incomes from services furnished by the bureau, so that they can maintain a quality of medical service on the high level of private practice. The fees received for services rendered through the bureau were apparently satisfactory, and in my opinion compared favorably with fees received in the Mississippi Valley in private practice.

All business relations of the medical profession with labor and others are transacted by the business manager, Mr. Elting, and the board of directors, through the business office of Physicians and Dentists, Incorporated, which is the business office of the Whatcom county Medical Society.

Here we had the beginning organization of American Medicine through County Medical So-

ciety units, on a broader and more practical scale in which Medical Economics actually developed real significance to its members. It meant the assumption of collective professional economic responsibility. It meant the group sale of professional skilled services on a prepaid experimental, monthly insurance basis. It meant the employment of lay skills. It meant the education of medical men to the changing demands of an industrial age and that I suspect was the toughest job of all. It meant a successful struggle to maintain the personal intimate relationships of doctor and patient through such changes unmolested by bureaucratic or selfish lay interests.

W. M. Hartman, M. D.

DOCTORS SNUB COLLEAGUE

Almost half of those present walked out when Dr. Aaron Rosanoff, director of the State Department of Institutions, began his address at the California Medical Association convention. This incident, without precedent in the history of the association, was said to have been the physicians' method of expressing disapproval of conditions in State institutions.

SQUIBB STILBESTROL RELEASED FOR SALE

After two years of clinical trial, during which time over a hundred papers were published reporting studies in which it was used, Stilbestrol manufactured by E. R. Squibb & Sons, New York, is now offered for sale to the druggists of the land. Stilbestrol is a synthetic estrogen possessing the physiologic properties of estrogenic substances derived from natural sources. Chemically, it is alpha, alpha'-diethyl-4, 4'-stilbenediol. It is also called diethylstilbestrol.

Stilbestrol orally has a ratio of effectiveness to intramuscular injection much superior to that possessed by natural estrogens. It has another advantage over the natural estrogens in that it is considerably more economical.

Striking therapeutic results have been obtained with estrogenic substances, whether natural or synthetic, in alleviating the vasomotor symptoms of the menopause. In proper dosage, they are also effective in treating gonorrheal vaginitis in children, senile vaginitis and kraurosis vulvae and pruritus vulvae of the menopause. It may also be useful in preventing and relieving painful engorgement of the breasts during suppression of lactation.

"Are you a drinking man, Mr. Sooner?"

"Never was, Doc. Only recently I kind of got started on the stuff, and I can't stay away from it."

"Just how recently is that?"

"Oh, maybe ten, twelve years."

Original Articles

RECURRING OR PERSISTENT GIANT URTICARIA

(ANGIONEUROTIC OEDEMA)

R. F. FARQUHARSON, M.B., F.R.C.P. (C)

The occurrence of urticaria of varying severity is one of the common problems of private practice. Most people have been troubled occasionally with a few hives and it is not uncommon to experience a more generalized urticarial eruption as a transient phenomenon which is of no importance. Frequently one is called on to give relief to the patient suffering from the intensely itchy generalized urticaria of serum sickness which comes at a definite interval after the administration of serum. One may find an occasional patient who is sensitive to injections of liver extract, or similar material, and who suffers a transient distressing eruption that appears within a few hours of the injection. Rather less commonly one sees a patient suffering generalized urticaria after ingestion of a food or drug — strawberries, lobsters, aspirin etc. — to which he happens to be sensitive. These definite allergic types of urticaria come as an incident or series of incidents of which the inciting cause is commonly obvious, but sometimes when the offending factor is not apparent. Usually they do not constitute a serious problem.

The treatment of patients suffering from recurring and persistent urticaria is much more difficult. Often the disorder has had a sudden onset and is at first regarded as an unimportant, annoying incident. Sometimes only a few trivial

hives appear at first and little attention is paid to them. Later widely spread urticarial wheals appear and persist for long periods, and recur again and again with only short intervals of freedom. In some cases the wheals are huge, in others smaller, usually varying from day to day. The itching may be almost intolerable. Swelling of the cheeks, lips, eyelids is common, and the resulting disfiguration may be the patient's chief symptom. Less frequently there is swelling of the tongue and other mucous membranes.

In the common generalized form, dangerous swelling of the larynx is extremely unusual. Such a serious lesion does occur in those rare cases in which there is a family history of angioneurotic oedema, with instances of sudden death from laryngeal obstruction. Unlike the hereditary cases in which angioneurotic oedema recurs throughout life, the common type of which I speak has a more definite onset, persists for weeks, months and occasionally a few years, then tends to cease spontaneously. In both types it is probable that there are underlying constitutional factors in virtue of which the urticarial reaction is more easily elicited. Both tend to occur in nervous, sensitive individuals. In both types the disorder is greatly aggravated by worrying about it.

Because of the emphasis laid on allergy in recent years it has been common to regard recurring and persistent giant urticaria as an allergic manifestation. Most of the investigation and treatment has been done from this point of view. Usually these patients have been given a full range of skin tests, histories have been taken carefully, and diets planned to eliminate one substance after another, have been given monotonously in the attempt to find an offending food

From the Departments of Medicine and Therapeutics, University of Toronto, and the Medical Service, Toronto General Hospital.

Presented before the Section on Medicine, 101st Annual Meeting, Illinois State Medical Society, Chicago, May 21, 1941.

or contact substance. All kinds of remedies have been used. The diet has been restricted, administration of adrenaline, ephedrine, calcium salts, many other drugs new and old, sedatives of various kinds, and application of calamine and other lotions has been tried, usually with little success. The failure to find an underlying cause and to give relief increases the patient's anxiety and gives rise to a feeling of hopelessness. It also focuses attention on the disorder which comes to occupy the patient's mind most of the time.

The thesis of my paper, by no means a new one, is that in many of these cases urticaria recurs and persists because the patient is going through a period of strain or anxiety, an emotional cause having a physical manifestation. Oftentimes the initial precipitating cause has ceased to exert an influence and the trouble is maintained by anxiety about the persistence of the urticaria and the failure of physicians to get to the bottom of the trouble and give relief.

The investigation and treatment of such cases consists in studying the patient as a whole and particularly in recognizing the constitutional type and learning the emotional background. He is usually a sensitive person. Sometimes he has a real cause for worry which is greatly augmented by anxiety about the physical disorder. By the time his full history has been taken carefully and thoroughly from this point of view, not neglecting to go into history of allergy, other reactions, and other diseases, the patient usually understands himself better than ever before and has acquired confidence in the physician. The effect of various emotions on the function of the skin in particular and tissues in general is explained, and a good prognosis given. The result is often dramatic, as indicated by the following cases.

CASE I. — *Mrs. C. B. aged 34.* When first seen in October, 1939, she had been troubled for over a year with generalized urticaria which was most marked on the face. Her eyes would often be closed and her lips greatly swollen. She was never entirely free from the trouble, but tended to be worse in the early morning and in the evening. Search for substances to which she might be sensitive had been unsuccessful. She had thought the condition aggravated by ingestion of tomatoes, eggs, lobsters and strawberries, and although she had avoided these foods for months the urticaria persisted. She could hardly tolerate the itching: she had not slept for over a year without a sedative. She was worried about her appearance and

discouraged. She was referred by a dermatologist for thorough investigation.

Physical examination and laboratory investigation failed to reveal any cause for her trouble, but her history showed her to be an intelligent, sensitive, conscientious, rather self-depreciative, pleasing type of person who took things seriously, tended to worry and be at times a little depressed, but not lacking a sense of humour. She had never been robust and had often had periods when she felt run down and tired. At one time or another, tonsils and adenoids, appendix, one ovary and both tubes had been removed. Between illnesses she had worked as a stenographer-secretary to the complete satisfaction of her employers who valued her services highly.

She was fairly well when married at 30 years of age, but worried because of probable sterility. Two years later she became greatly concerned over the mental illness of a sister who was seriously depressed. The patient feared that there might be mental disease in the family and was very sensitive about it. She became listless and tired, and lost interest in ordinary things. When she had been feeling poorly for about one year, hives began to trouble her. There was no obvious reason. The persistency of the urticaria and the disfiguration of her face became her chief concern. Her mind was on it all the time. As one remedy after another failed to help she became more and more discouraged. She refused to go out on the street or to visit her friends because of her appearance, wondering what people would think about her. Unusual agitation seemed to make the swellings worse. She doubted if the cause would ever be found and wondered whether anyone had ever suffered as long from this disorder. She complained that she was useless, just an encumbrance to her husband.

By the time she had given her lengthy history in detail she had begun to appreciate how much her worry and moods had adversely influenced the function of her body. She was told that there was no serious disease, that the urticaria was greatly aggravated and possibly maintained because she was constantly worrying about it, that whether she continued to worry about it or not it would cease spontaneously, but that it would clear up much more quickly if she could get over the agitation and become more philosophical about it. Being an intelligent and rather understanding, sensible person, she appreciated the problem and cooperated at once in her treatment. She began to take an ordinary diet without restrictions; resumed a life of regular hours; began to take increasing amounts of exercise in the open air, and to visit her friends.

In the next few days the urticaria became much less and within a week it ceased entirely. Within a month she was sleeping without sedatives for the first time in over a year. She began to eat and enjoy tomatoes, eggs, lobsters and strawberries, foods that formerly had been thought to aggravate the urticaria. She continues to be well.

CASE II. — *W. G., aged 38, electric welder.* Referred for investigation because of recurring and persistent urticaria of eighteen months' duration. The whole body had been affected but the face particularly had been swollen, often to the point of being unrecognizable. Attacks would persist for days and since the onset he had never had a week of freedom from the trouble. He had consulted many physicians and tried all manner of treatment. He had eliminated from his diet greasy foods, sugar, most starches and milk, without improvement.

By nature he was a calm, quiet sensitive, conscientious person who had been healthy in early life. From the age of sixteen he had suffered aching pain in the left sacro-iliac joint and since 31 years of age had been troubled similarly with aching of the whole spine, most marked in the lumbar region, worse when tired, and worse in the winter. His back had become stiff, yet he had carried on without losing a day from work on that account. At present his spine is rigid from spondylitis deformans.

Some eighteen months previously his face had been cut in a motor accident, requiring eight or nine stitches. He was greatly upset emotionally by the accident. Some two to three weeks later his face became swollen and he suffered an itchy generalized urticarial eruption. From that time he was subject to repeated attacks of angioneurotic oedema involving the face and sometimes extending over the body. He became discouraged and depressed over failure to get relief. He was so sensitive about his appearance that he would stay away from work and would not even go out on the street when his face was swollen. He thought that there must be some serious underlying cause which might require surgical interference of which he was very much afraid. He wondered if it could be due to cancer.

He accepted with confidence the explanation that the persistence of the angioneurotic oedema was due in large measure to his emotional attitude and he seemed to be reassured immediately. The urticaria disappeared almost at once. One month later he reported that he continued to be entirely free of it. He had not felt so well since before the motor accident. When he had been free for two months he witnessed a motor accident following which one side of his face became swollen for twelve hours. On seeing the accident he had anticipated that it might cause a recurrence; he was satisfied that he understood the reason for it and accepted it without anxiety. Since then he has been free from any urticaria, a matter now of several months.

CASE III. — *C.J., aged 30.* This intelligent, artistic professional man had suffered from an extremely itchy generalized urticaria for some three weeks. In referring him for general investigation his physician stated that the man was worn out with lack of sleep and that something must be done about it. When asked what the patient was worrying about he replied

that he had no worries. He was happily married, had a good position and good prospects. Before the patient arrived, however, his doctor telephoned again to state that he had learned that the patient had been greatly concerned in the past five to six weeks over some reorganization in the institution where he was employed. He feared that he might be demoted. That day, however, the trouble was cleared up and he was assured of his position. He slept well that night. Within a few days the hives ceased to bother him. Investigation was otherwise negative.

CASE IV. — *E. R., aged 37.* This sensitive, intelligent school teacher suffered for six months from huge urticarial wheals that appeared all over her body. Sometimes there was associated swelling of the tongue and throat with some difficulty in swallowing. She had been greatly worried over a change in the curriculum that made her work more difficult, and she had suffered a strong emotional reaction because her family were opposed to her prospective marriage to a divorced man. When it was decided to go ahead with the marriage with the blessing of her family, the urticaria disappeared and has not recurred in the subsequent four years.

Sometimes the initial attack seems to follow upon exposure and fatigue, as in the case of a woman who suffered an eruption the day after she had been chilled while planting bulbs at their country cottage, late in the fall. Generalized giant urticaria persisted for several months. Skin tests and tests of food by careful dieting were negative. "Thorough investigation" in hospital failed to find a cause. She became quite agitated about her appearance and about the itching and demanded that something be done about it. Everything that was done failed to help her. All this time she was worried, without adequate cause, about her adolescent son who was keeping rather late hours. After bothering her for some six months the hives disappeared spontaneously, and have not recurred in the subsequent five years. Her son has done well and will be graduated this year from university.

One could instance many other cases in which generalized urticaria appeared and persisted during a period of emotional disturbance, to disappear with relief of the anxiety. In the case of a forty year old journalist, giant urticaria recurred repeatedly during several months of unhappy relations at work, and ceased when he was firmly established in a position more to his liking. Similarly, a rather introspective business man of sixty who hated any blemish whatsoever became

greatly concerned over the persistency of a generalized urticaria that had bothered him for about a year. Failure of numerous remedies to give relief increased his anxiety. The wheals disappeared when, after a thorough examination, he was given calcium lactate and assured that such trouble always cleared up spontaneously when treated or not. He has been free from urticaria for over eight years.

Such instances could easily be multiplied. In some cases an obvious emotional factor is apparent; in others it is found only after careful enquiry. When a nervous factor cannot be demonstrated it still holds that in almost all cases the urticaria ceases spontaneously after a period of several months.

It has already been pointed out that cases of generalized urticaria of definite onset have a better prognosis and appear to be different from those familial cases of angioneurotic oedema in which localized swellings recur from time to time throughout life. Even in familial cases, however, much can be done to relieve the attacks and reduce the frequency of their occurrence by helping to relieve nervous and emotional tension and by building up the general physical condition.

It is quite obvious that there must be some constitutional or other underlying factor which renders a patient likely to suffer from angioneurotic oedema in response to emotional disturbance, for many people suffer great emotional strain without any such disorder. It is well known, however, that, like the cardiovascular system and gastrointestinal tract, the skin is markedly affected by nervous influences. In response to acute disturbances there may be flushing or pallor. Chronic strain is often associated with generalized itching. Many types of skin disorders are aggravated by nervous reactions. In good health, on the other hand, the skin is clear, elastic and of good turgor. It is probable that the urticarial response which occurs in some people becomes habitual, being more easily elicited in repeated reactions. The fact that most cases clear up entirely, however, would suggest that the emotional condition is only a very important inciting cause and aggravating factor. Its great importance in treatment is beyond question.

In conclusion, it should be pointed out that in most cases of recurring and persistent gen-

eralized giant urticaria it is impossible to demonstrate a definite allergic basis unless one considers the ability to react in this manner to emotional stimuli as an allergic manifestation. A futile persistent investigation along ordinary allergic lines often increases the patient's anxiety and leads to a feeling of hopelessness which makes the situation worse. Most cases will be relieved, however, by careful investigation to bring out the emotional factors, explanation of the relationship between emotional disturbance and the urticaria, and reassurance that in any case the trouble will soon disappear.

HEMOLYTIC STAPHYLOCOCCUS SEPTICEMIA

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Contrary to common opinion, the staphylococcus is the deadliest organism of general sepsis. This bacterium, of universal distribution and of extremely low virulence, is generally considered to be a secondary invader, leading a saprophytic existence on the skin and mucous membranes of the body, producing small pimples, furuncles and abscesses. Thus, it is not fully appreciated that at the same time it is always capable of producing the most dangerous of all septicemias. It is possible, from the most insignificant site of infection — even the tiniest abrasion of the skin — for the staphylococcus to invade and infect the blood stream, with a very serious or fatal outcome due to the formation of septic foci or abscesses in all the organs of the body, with the occurrence particularly of metastatic abscesses, bronchopneumonia, and degeneration of the kidneys, liver and heart.

According to the literature, the instance of staphylococcus is also greater than commonly thought. About two-thirds of all cases of septicemia are due to streptococcus, principally streptococcus hemolyticus. Stevens¹ has made an estimate of 60% and Brokhardt² an estimate of 80 to 90%; Rosenow and Brown³ have given the ratio of approximately 2:1; Neuhof⁴ and his co-workers have estimated the instance 3:2.

It is well perhaps to use Kolmer's⁵ definition of staphylococcus septicemia, i.e., "An infection of the blood by staphylococci, their pathogenic

presence and products in the blood, associated with infection of fixed tissues, resulting in severe constitutional disturbances with the signs of sepsis."

It is also well to take cognizance of the fact that a harmless transient staphylococcus bacteremia does occur without septicemia and cases have been reported as occurring after minor surgical procedures, such as extraction of teeth, tonsillectomy, et cetera.

The mortality rate for staphylococcus septicemia is very high. It is a deadly disease and frequently when the diagnosis is made it is already beyond control. Most authors place the mortality from 70 to 90%. Rosenow and Brown³ report 29 cases, with a mortality of 66%. However, we must recognize the fact that the last several years have seen the most rapid advance in the treatment of this disease, with the advent of the sulfonamide derivatives. These, I am certain, are going to completely reverse the picture, as more reports with favorable results continue to appear in the literature.

The given ratio as to sex appears to be 2 males to 1 female. The greatest age instance appears from 10 to 50; however, it does occur in all ages, from infancy to senility. It is interesting to note in the literature that the age factor is of considerable importance. Patients in the first decade of life seldom recover, the greatest percentage of recoveries occurring between the ages of 15 and 50 years.

Any debilitating disease such as diabetes, hypertrophied prostate, cardiac disease, et cetera, increases the mortality markedly.

The most common sites of infection are carbuncles, skin abrasions, abscesses, furuncles, osteomyelitis, prostatic abscess, infection of the nasal sinuses and dental infections, and tonsils.

With the advent of the present day chemotherapy the duration of the disease is rapidly decreasing. In the past the duration appears to have averaged from 60 to 90 days.

In reviewing the literature, about 90% of the cases appear to be caused by staphylococcus aureus hemolyticus. Occasionally there is reported a case of staphylococcus albus hemolyticus, but the cases I have seen reported have terminated fatally.

The peripheral blood picture is that of a

marked toxicity with a secondary anemia (if the patient survives long enough), with a gradual fall in the red blood cells, these being apparently due to the toxic effects on the erythroblastic function and the hemolytic character of the organism. Leukocytosis appears to be the general rule, although in my own cases I did not have a marked increase in the white blood count — in fact, there was a marked leucopenia in one case and moderate in several others. According to the literature, too low or too high a white count indicated a very bad prognosis. The polymorphonuclear neutrophil is increased in practically all cases, sometimes going as high as 100%. This type of case is practically always fatal. The Schilling index always shows a marked shift to the left.

The urine usually shows the effects of toxic parenchymatous changes in the kidneys, with red blood cells, casts or pus, presence of albumin and usually associated acidosis.

Blood cultures are of course positive, and should be verified by two or more cultures, and, if possible, colony counts.

As a general rule complications are common, usually manifesting as a secondary focus of supuration in a fixed organ or tissue. Failure to demonstrate these foci generally is due to the fact they occur in a silent organ; also, the patient is usually too ill to search extensively for foci. Broncho-pneumonia seems to be the most common of these; however, patients sometimes have no demonstrable complication.

Treatment, of course, is the outstanding problem, due to the nature of the disease; and probably should be grouped under three general headings: (1) Eradication of any local foci that are feeding the infection; (2) Attempted sterilization of the blood stream; (3) Supportive treatment.

Probably the removal or drainage of the source of infection is the most important factor in recovery, even extending to amputation, if necessary.

In the past practically every therapy has been tried. Among the various chemicals that have been used for blood stream sterilization are mercurochrome, metaphen, acriflavin, gentian violet, and others too numerous to mention, but all tried and found wanting. Now, with the advent

of the sulfonamide derivatives it appears we have an improved medication for sterilization of the blood stream in staphylococcus septicemia, to be used in addition to repeated transfusions, especially immunotransfusions, plus a commercial brand of antitoxin. One report⁶ deals with the use of neoarsphenamine in combination with sulfathiazole.

In my own cases, all of which had two or more positive blood cultures, I used sulfanilamide, sulfapyridine and sulfathiazole, repeated transfusions, intravenous solutions, hypodermoclysis, foreign protein, intramuscular injections of liver extract, and staphylococcus antitoxin. In one case I was able to use immunotransfusion.

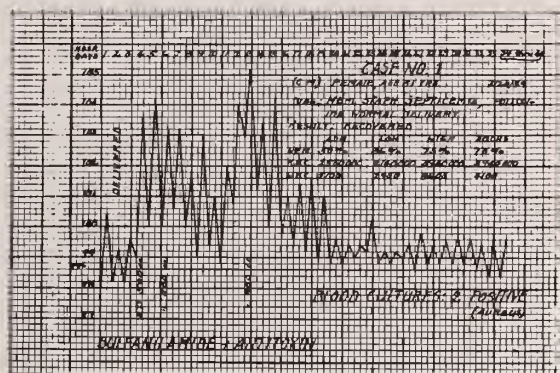
Dosages I have omitted, as you are familiar with them, and times does not permit my going into much detail.

Supportive treatment should consist of absolute rest, forcing of fluids, and diet as high in caloric value as the patient will tolerate, given in small frequent feedings. If the patient is unable to tolerate food by mouth, this should be supplied by intravenous glucose or sucrose, with an adequate intake of chlorides, especially if the patient is vomiting; probably liver extract intramuscularly; and red meats are valuable, especially in the convalescent stage. For failing heart digitalis may be required. Pain should be considered, and every attempt made to alleviate it. Rest and sleep should receive prominent consideration.

Six cases of hemolytic staphylococcus aureus septicemia have come under my observation in my general practice in a small hospital in the last year or two. One case I saw in consultation. In addition, I am reporting one fulminant case seen by a colleague.

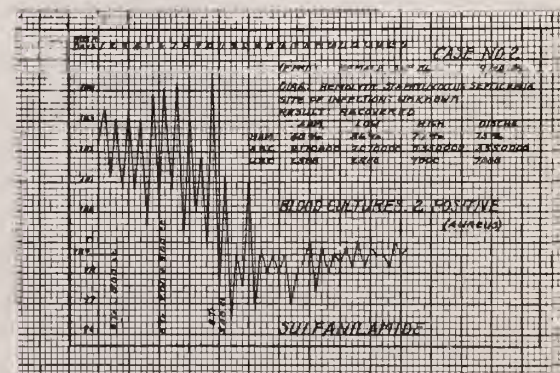
CASE REPORTS

Case No. 1 (C. M.) A white female, age 31, multipara at term, was admitted to the hospital on March 24, 1939. She had no complaints other than pains of labor. Past history of no clinical importance. She had had no prenatal care. Normal delivery of an 11 lb. 2 oz. infant on March 25. Temperature was elevated following delivery, but practically normal on 2nd and 3rd postpartum days. On 4th postpartum day temperature rose to 103.6° at 4 P.M., and for the next 12 days remained elevated, reaching 105° at one time. Lochia was at all times normal. Urine was negative except for trace of albumin. There were no other

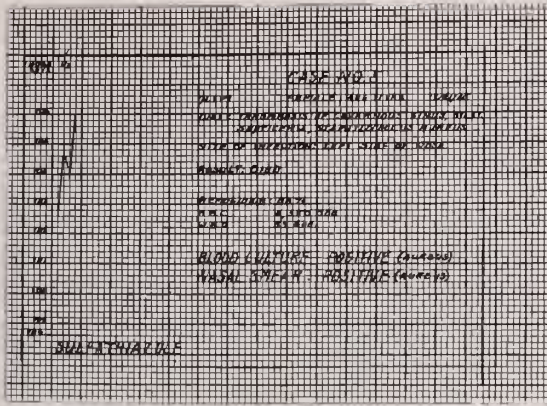


objective or systemic findings. In absence of other findings blood culture was made on the 7th day, which was positive for staphylococci (aureus); after 44 hours large amount of hemolysis present. On 14th day second blood culture was positive for staphylococci, with hemolysis. Sulfanilamide therapy was instituted immediately following the first elevation of temperature (on the 4th postpartum day), and continued until the 18th hospital day when it was discontinued because of leucopenia (WBC 3650). Admission hemoglobin was 50%, RBC 2,500,000 and WBC 5100. On the 6th day hemoglobin dropped to 36%, RBC 2,200,000 and WBC 7500. Multiple transfusions were given with the hemoglobin returning to 50%. On the 18th day patient was given 100,000 Units of staphylococcus antitoxin; the 19th day, 40,000 Units, and the 20th day, 20,000 Units. Following the antitoxin patient's temperature began to recede, and subsequent blood cultures were negative. She was put on liver and iron therapy, and her condition continued to improve until on discharge on the 44th day she was recovered. In all probability, parturition was the source of infection.

Case No. 2 (E. McD.) An acutely ill, white female, age 46 years, was admitted to the hospital on

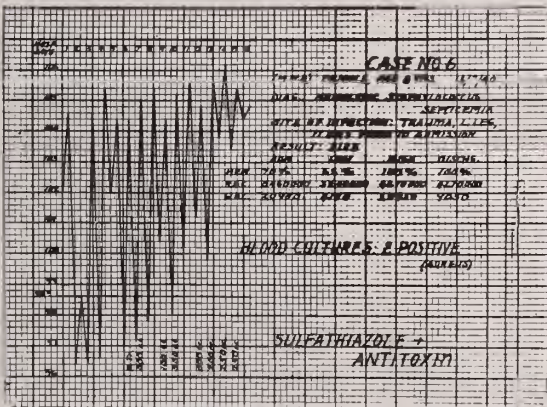


September 28, 1939. She gave a history of fever and chills, with occasional l. u. q. pain, during 10 days prior. Physical examination was negative except for marked local tenderness in l. u. q., and a palpable spleen the size of a small grapefruit. Urine showed a few pus cells, and 1 plus albumin. Blood culture made on admission was positive 48 hrs. later for



Edema of nose with a couple of yellowish points seen high up in lateral wall on left nostril. Marked chemosis of conjunctiva; eversion of lids; pupils do not react. Facial motions symmetrical so far as can be told, except for edema on left. Lips dry, tongue coated. Heart sounds soft, rather rapid with soft systolic murmurs. Few rales, both bases. Abdomen distended. Pallor and moderate cyanosis of extremities. All reflexes depressed; no Kernig. H. 88%, RBC 4,350,000, WBC 39,600. Blood culture and smear from nasal exudate positive for staphylococci (aureus). Sulfathiazole therapy. Patient died about 8 hours after admission. No blood transfusions were done. Final diagnosis was thrombosis of cavernous sinus, bilateral; septic staphylococcus aureus.

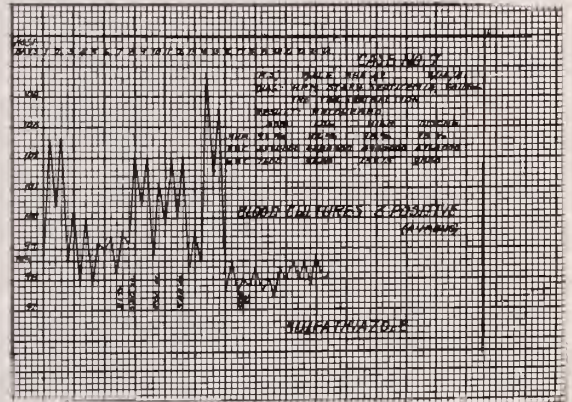
Case No. 6 (M.M.D.) Female child, age 8 years, admitted to the hospital on December 7, 1940. Eleven



days prior had skinned left knee and calf. Pain, some redness and swelling, moderate fever for few days, increasing until temperature was 105° on admission. History negative. Ear or mastoid infection ruled out. Positive findings on physical examination: throat injected, tongue coated, marked acetone odor on breath. Heart sounds soft, with soft systolic murmur; respirations slightly grunting in type, some distant breath sounds and occasional clicking rales in left base posteriorly. Abdomen moderately distended, with tenderness in l.u.q.; lower lobe of spleen questionably

palpable. Healing infections, left knee and calf, with very little active inflammatory process. All reflexes depressed; no Kernig. Repeated blood cultures positive for staphylococci (aureus), with hemolysis, and abrasion on leg also gave positive culture for hemolytic staphylococci. Sulfathiazole therapy was begun on 2nd day and continued thru the 13th day; 100,000 Units of staphylococcus antitoxin administered, beginning on the 7th day; and seven blood transfusions were given between the 6th and 15th days. Patient's temperature was constantly elevated, reaching 106.4° at one time. Admission H 70%, decreasing to 62% on the 7th day and rising to 100% on the 13th day. Admission RBC 3,460,000 and WBC 20,950. On 10th day WBC was 4,150 and on the 14th, 9,050, with 4,270,000 RBC. Patient expired on the 15th hospital day.

Case No. 7 (R. S.) White male, age 42, admitted to the hospital on March 14, 1941, with chills and



fever, prostration, and pain in left lower chest. History revealed he had had a number of teeth extracted 6 weeks prior, following which he had developed chills and fever and a few days before admission, a severe "cold." Past history of influenza and pneumonia in 1918. Physical findings showed an acutely ill man, with marked prostration and nervousness. Throat was injected; dullness and some scattered rales in lower left chest, pole of spleen palpable on deep inspiration. Admission temperature was 99.8°, going to 102.6° later that day, and remaining elevated, reaching 104.8° at one time, until on the 16th day when it became normal and remained so during the balance of hospitalization. Admission H 92%, RBC 4,520,000 and WBC 7,000. Sulfathiazole therapy was instituted on the 2nd day and discontinued on the 11th day. Blood cultures taken on the 1st, 3rd and 7th days were positive for staphylococci (aureus); all subsequent cultures were negative. Blood transfusions, of 500 cc's each, were given on the 8th, 10th, 12th and 17th days. On the 22nd day his general condition was good, his chest clear; hemoglobin 95%, RBC 4,760,000 and WBC 8000. He was discharged from the hospital on the 24th day.

CONCLUSIONS

1. Staphylococcus septicemia is probably the most deadly systemic disease.

2. Its instance is greater than commonly thought.

3. The mortality rate has been very high in past; cases reported since the advent of sulfonamide derivatives show marked decrease in mortality rate.

4. Age factor important — greater percentage of recoveries occur between the ages of 15 and 50 years.

5. Most common sites of infection: Carbuncles, skin abrasions, abscesses, furuncles, osteomyelitis, prostatic abscess, infection of nasal sinuses, dental infections, and tonsils.

6. Marked decrease in duration of disease since introduction of sulfonamide derivatives.

7. According to literature 90% of cases are caused by staphylococcus aureus hemolyticus.

8. Complications are common.

9. Treatment: Eradication of any local foci; sterilization of blood stream (sulfonamide derivatives); supportive treatment.

In closing, I may say that although I am neither bacteriologist nor scientist, the conclusion I have drawn from my series of cases is that the future looks much brighter for this type of case, since the introduction of the sulfonamide derivatives.

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STERILITY

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In gynecology, there are few things to compare with the successful management of human sterility. In majority of instances the couple seeking aid are cooperative, genuinely sincere and deeply appreciative.

It has been said 10 - 12%¹ of all marriages are unfruitful. No doubt this figure is subject to variation due to the individual problem in each case.

Too often there is created unjustly around the female an atmosphere of responsibility. In many cases this is purposely done by the husband to avoid suspicion of his own condition or fitness. Most authors² agree on the title of sterile couples because the problem confronting the doctor concerns two people. A man and wife are considered sterile if their union of marital relationship fails to result in conception after 1 - 3 years³. We assume of course that their contact was normal. For conception to ensue, the following are pre-requisites: 1) that healthy spermatozoa be deposited in the vagina. 2) that the spermatozoa gain entrance into the uterine cavity and then into the fallopian tubes. 3) that the ovary cast off a healthy ovum. 4) that the ovum enter the fallopian tube and be fertilized thence transported into the uterine cavity. 5) where healthy mucosa affords implantation and development. Some of these five will be lacking to a certain extent in every case of sterility. Therefore, the investigation of a couple should begin with this outline in mind.

Various authors ascribe 30 - 40% of sterility to the male. The cause may be constitutional as systemic disease, endocrine imbalance or poor health. Likewise local conditions such as aspermia, venereal disease, faulty lytic, power of the sperm or fatigue due to excessive coitus. Recent studies seems to emphasize the importance of the germ plasma more than the motility of the sperm.⁴ The technique for sperm examination was described by Huhner.⁵ In this past year W. H. Carey⁶ furnished results of his study on sperm motility and fertility in relation to time and temperature. Much against popular belief he states the unfavorable influence of body tpr. on sperm life.

Given at the Illinois State Medical Society Meeting Wednesday, May 21, 1941.

The remaining 60 - 70% of sterile couples are so because of disturbances in the female. Again, the trouble may be general, local or both thus making it imperative for a careful history including family trait, venereal disease, systemic conditions, local symptoms and the use of contraceptives. With this information in mind we proceed with the physical examination giving special attention to any evidence or endocrine imbalance. Obviously, the pelvic examination must be done in detail. The external genitalia are noted and the following points are ascertained. Does penetration occur? Is the pelvic floor firm? What is the reaction of the vaginal secretion? The highly acid are said to retard semen activity. The highly alkaline will if present for any length of time permit an abnormal vaginal flora to occur and exist to the exclusion of normal flora. It would seem therefore⁷ since the semen and cervical secretion are alkaline that a vaginal reaction neutral or slightly alkaline would favor fertility. This however is doubted by some. It is thought that the alkaline secretion from Bartholin glands neutralizes the vaginal acidity at time of coitus therefore we need not be greatly concerned over the normal vaginal acidity. Muench⁸ believes that the cervix is entirely mechanical and that the P.H. or presence of pus, blood and bacteria have no effect on the sperm. Personally, I cannot agree because from experience there have been cases of lacerated, eroded or infected cervixes which when cared for cured the sterility. In support of the mechanical role the cervix plays, we read a report submitted by F. C. VanTonger⁹ who showed a simple sounding the cervical canal resulted in cure of 85 sterile women to the extent of 85%. The uterus, tubes and ovaries are carefully palpated and evidence of uterine malposition, myomas and etc. should be ascertained. As for the adnaxae we give detail note to size, mobility and any evidence of previous inflammatoire process which may have produced tubal occlusion or adhesions.

In many cases we need look no further than the cervix for the cause of sterility. The correction of stenosis or existing disease is familiar to all. However, in other cases approximately 20% of the trouble is tubal occlusion. Not until 1920 when Rubin¹⁰ gave to us tubal insufflation

by the gas method did we have a convenient diagnostic procedure for tubal closure.

The test may be easily carried out in one's office. Not infrequently conception will follow such a test. Apparently it may either temporarily dilate the tube or facilitate contact of the gametes. If the gas mixture fails to go through then we know a tubal closure is present and the location of such an obstruction is found by hystero-salpingography using a contrast media preparation. The technique of this procedure is described in the literature. The relative harmlessness of uterine oil infection was brought out by Sicard and Forestier¹¹ in 1922. They showed it to be non-irritating to peritoneal surface. However, both minor and major accidents have happened during the oil injection but probably errors in technique or judgment are responsible. The work of Sampson on Endometrial Transplant with reference to the periods should be kept in mind while making the test.

With the occlusion located we are better able to prognosticate as to the form of treatment and results expected. Plastic surgery on the tubes is often disappointing because of the proportion of success varies directly with the distance of occlusion from the uterine tubal junction.

Not infrequently conception follows the operative procedure but in many instances this is an ectopic gestation with the result that Graff¹² believes the procedure to be successful in only 10% of the cases. Success is meant to be a normal term pregnancy.

As a supplement to tubal plastic an important contribution was made in 1931 by Newell¹³, namely tubal irrigation with sterile solution after the plastic work to demonstrate tubal patency before the abdomen is closed.

From the endocrine angles many articles are published but to me the condition best treated is one of hypo-thyroidism. Success has been obtained by using pituitary or ovarian medication but not to the extent that thyroid administration has accomplished.

From my own experience the following cases will indicate some of the different types of sterility and their method of treatment:

B. K. Age 31. Married 14 yrs. q 28-35/4-5 days.
9/3/38 (Sterility) 2' retrodisplacement. Partial cervical Stenosis.

9/9/38 Cervix dilated. Ring placed.

- 10/5/38 Rubin. (closed).
 11/2/38 Rubin. (closed).
 11/30/38 Rubin (closed) but inflated post coital.
 1/5/39 Uterus enlarged. Early pregnant.
 4/6/39 Pregnancy progressing nicely and apparently normal. F.M. felt.
- F.D. Age 22. Married 3½ yrs. 3 spont. misc. 6-8 wks. q 28/6 days.
 3/15/37 Thyroid medication.
 5/14/37 Rubin, thru on arriving home.
 7/19/37 Inflated, thru immediately, thyroid continued.
 5/2/38 2 months pregnant.
 12/38 Delivered normal child.
- H.O.W. age 23. Married 4 yrs. (sterility for 1 yr.). q 28/4-5 days
 7/7/37 Cervix cauterized for mild cervicitis.
 11/23/37 LMP.
 8/27/38 Delivered normal child.
- A.T. Age 30. Sterility 3 yrs. 1 child age 3½.
 3/28/38 Mild cervicitis. Retrodisplacement. Ring placed. Cauterized. Continued Rx. to cervix & thyroid.
 7/13/38 Rubin. Air thru on arrival home.
 3/12/39 Delivered normal male.
- F. Ky. Age — 25. Sterility 2 yrs. q 30-3/days. Appendectomy with drainage 15 yrs. ago.
 2/3/37 Adnaxael masses and cervical erosion.
 2/26/37 Cervix cauterized.
 5/24/37 to 8/27/37 Rubin with no air thru.
 1/22/38 Hystero-salpingogram. Explanation of sterility. See slide.
- A. S. Age — 24. Married 4 yrs. Sterility. q 30-35/2-3 days.
 1/8/36 Rubin. Air thru at 180.
 Local Rx. Rubins plus thyroid. Husband OK.
 11/30/36 D & C. Not notable.
 Rubin, Rx. and thyroid.
 5/5/38 LMP Jan. 24, 1938.
 11/5/38 Delivered male, breech. OK.
- C.B. Age — 33. Married 16 yrs. 1 child age 15.
 10/26/36 Irregular menses, q 14-28/5 days. Sterility.
 3' retrodisplacement, left salpingo-oophoritis. Cervical erosion and laceration.
 11/7/36 Left adnaxae, ligament shortened, appendectomy D & C, cauterization of cervix.
 8/23/37 last period July 20, 1937.
 9/3/37 Pregnant.
 4/22/38 Induced, female 7 lb. delivered.
- C.B. Age — 29. Sterility 3 yrs. q 28/1-3 days.
 4/14/37 Cervical stenosis. Retrodisplacement.
 4/26/37 Cervix cauterized.
 5/17/37 Local Treatment and massaged.
 8/6/37 Uterus pregnant.
 3/18/38 Delivered normal male.
- C. Age — 25. Married 3 yrs. Dysmenorrhea and sterility q 28/3-4 days.
- 7/3/36 Antiflexion of uterus and cervical stenosis.
 7/7/36 D & C and stem pessary.
 8/28/36 to 5/24/37 Dilatation.
 9/8/37 to 8/26/38 Dilatation plus Rubin.
 Pregnancy present. Pr. referred back to family M.D. for delivery.
- J.C. age 22, q 28/2-4 days. Pelvic distress. Appendectomy 5 yrs. ago with drainage.
 12/18/35 Sterility 2 yrs.
 Local Rx. with improvement in feeling at intervals.
 11/11/36 Rubin (230), none thru.
 11/9/38 Hystero-salpingogram — explanation — closed tubes.
- H.C. Age 28, q 30/3 days. Married twice 5 yrs. (sterility).
 3/2/28 Chronic P.I.D.
 Local Rx. and etc.
 8/15/38 Rubin no air thru.
 9/15/38 Rubin no air thru.
 10/19/38 To have x-ray.
 11/20/38 LMP
 Pregnant. E.D.C. August 1930. Normal termination of case.
- D. Jr. Age 22. Sterility 6 mo. Cramps with periods.
 Menst. History. Onset at 12, q 4-6 wks: 3-5 days. Required bed rest. Exam.: tender over appendix.
 Ovarian cyst rt. Cervical stenosis.
 3/7/39 Appendectomy. Ovarian cyst. D & C, stem pessary.
 7/18/39 Huhner test OK.
 8/2/39 Tubal inflation, air thru.
 9/20/39 Thyroid 3/4 gr. O.D. (No cramps)
 10/20/39 Cervix sounded. LMP Oct. 15th, 1939.
 7/18/40 Sp. onset of labor. Delivered male 7 lb. 3 oz.
 5/10/41 OK. to date. Periods regular.
- Mrs. C. R., age 27, married 3 yrs. Sterility 2 yr.
 5/26/38 Menst. History, onset at 14, q 28/3-4 days.
 Cramps 1st day. (Cervical stenosis & Erosion)
 6/1/38 Tubal inflation thru on both sides.
 7/5/38 to 1/13/39 Cervical treatments and cauterization.
 Huhner test showed no sperm. Husband treated by Dr. Cannady.
 7/6/39 Early pregnant. LMP 5/15/39.
 2/20/40 Labor induced. Delivered male child, 6 lb. 5 oz.
 Epis. & outlet forceps.
 To date both normal.
- Mrs. L. K., age 28. Married 12 yrs. Sterility for last 8 yrs.
 7/5/38 Recent gain in wt. (yr.) Menst. History: Onset at 12, q 21/5 days. Some leucorrhea. Exam: antiflexed uterus, cervicitis mild, thickened adnaxae.

7/8/38 Wass. neg. Condom sperm OK. Tubal inflation (200) no air thru.
 8/16/38 Hystero-salpingogram (see report)
 5/25/39 LMP April. U. size of fist. A-Z neg. Pregnant progressed nicely. Delivered female 6 lb. 3 oz. Rotation, transverse.
 Baby and mother OK to date.

Mrs. J. H. age 37. Married 15 yrs. Sterility 8 yrs.
 9/27/39 Menstrual History: Onset at 13, q 28/4-5 days.
 Cramps with periods. Exam: Cervical erosion. Stenosis and multiple myomata.
 9/28/39 Tubal inflation, air thru.
 10/23/39 Cervical cauterization.
 1/10/40 Cervical cauterization.
 2/8/40 Tubal inflation — OK.
 5/14/40 LMP April 2. Br. sore. Ut. enlarging.
 6/6/40 Positive A-Z. BP 145/80.
 Pre-natal course complicated by mild hypertension and edema.
 1/18/41 Labor induced (3 hr. labor) Outlet forceps and episiotomy. Male child 7 lb. 6 oz. P.P. and subsequent course normal.

C.P. Age 31, Sterility 8 yrs.
 11/9/40 Cramps with period. Menst. History: Onset at 14, q 28/4 days. Exam: Cervical erosion with stenosis.
 11/18/40 D & C. Cervix cauterized, stem pessary. BMR — 17%.
 12/28/40 Stem removed. No cramps. Thyroid 1½ gr. O.D.
 1/18/41 Thyroid ¾ gr. Period OK.
 3/8/41 LMP 2/8/41
 5/10/41 Pregnant and normal to date.

A. Hel. Age 25. Sterility 3 yrs.
 6/19/38 Dysmenorrhea with nausea. Backache for yrs.
 Past Health. clean elective appendectomy 4 mo. ago.
 Menst. H. Onset at 12, q 35/7 days. Some leucorrhea.
 Exam. Cervical stenosis and erosion. 3' retro-displacement.
 6/28/39 Modified Gilliam shortening of ligaments. D & C.
 Stem pessary and cautery.
 8/2/39 Stem pessary removed. (Husband treated by Dr. Cordonnier).
 9/25/39 — 10/14/40 Inflated. Thyroid. C. dilated.
 4/30/41 LMP 2/23/41 Pt. pregnant.

A. Fed. Age — 28. Sterility 1 yr.
 9/16/40 Severe cramps. Menst. H. Onset at 12, q 21-28/3 days.
 Exam: Cervical stenosis.
 9/29/40 D & C and stem pessary.
 10/11/40 Stem pessary removed. Thyroid 1½ gr. O.D.
 11/27/40 Feeling very well. Husband checked by Dr. Cordonnier.

3/13/41 C. sounded. Thyroid and Vit. E.
 5/6/41 LMP 3/20/41 Pt. pregnant.

Mrs. W. L. Age 24.

7/7/36 Married 10 mo. Using diaphragm. Menstrual History Onset at 12, q 28/6-7 days. 1st day dysmenorrhea.
 Cervical stenosis and slight cervicitis.
 6/24/37 Desires pregnancy. No. c.c. for 3 mo.
 1/19/38 Cervix dilated with sound.
 2/16/38 Rubin. Air thru on rt.
 3/16/38 Erosion cauterized. Thyroid 1 gr.
 Husband sent to urologist.
 10/18/39 D & C stem pessary.
 11/9/39 Stem pessary removed.
 1/11/40 Inflation and thyroid until 6/19/40.
 No active sperm. Husband under treatment of Dr. Cordonnier.
 1/7/41 Pt. returned with early pregnancy.
 5/14/41 Pregnancy progressing nicely.
 31 total visits over period of 3 yrs. for pregnancy.

It is seen therefore that each case must be treated as an individual problem. The exact trouble being located by running the gauntlet of a thorough work up as previously mentioned in this paper.

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DISCUSSION

Dr. J. Cordonnier, East St. Louis: Knowing the risk of speaking to a group of obstetricians and gynecologists on a urologic subject, it might be worth while to mention the male aspect of this problem in order to complete the picture. I have worked with Dr. Scrivner on some of these cases and I think I have contributed just a little to produce that much desired effect he has emphasized.

It is a well known fact that many of these sterile marriages are due to the total infertility of either member or the partial infertility of one or both. Therefore, if we can increase the fertility of the male, frequently we can produce a pregnancy where we might not be able to do so in the same woman. I

think it might be well to run over the routine procedures we have followed on the male patients.

In the first place, we take a careful history. Very occasionally we get a history of mumps which is usually not bilateral. There may also be a history of epididymitis. The presence of venereal disease is important and it is well to take a careful history concerning syphilis. Occasionally, we will find that the couple has not been practicing just the right form of sex inactivity and for that reason have not gotten the desired result. Premature ejaculation is an etiologic factor.

Examination of these patients includes a careful inspection of the external genitalia; frequently this will disclose an old epididymitis. Then we check the prostate carefully. The last step is examination of the seminal fluid. This is the most important feature of the examination because it tells the story. I think the method of collection of the specimen is important, particularly from the standpoint of motility. The best method is to have the patient practice withdrawal and collect the specimen in a wide mouthed jar, and bring it to the office immediately. He does not need to keep the fluid at a certain temperature. The specimen is examined microscopically, and I do not go through a lot of fancy examination. No sperm count is done. If there is an adequate number of sperm present that is sufficient, and I do not think we need to go so far as to measure the size of the head of the sperm. After all, it takes only one motile sperm to do the trick and if we find a normal amount of motile sperm we consider the man all right.

As for treatment, we clear up any infection we find present in the genito-urinary tract. If he has a plugged ejaculatory duct we may probe or catheterize it. We try to build him up generally. Hormonal treatment may be of value.

One of our patients had an almost total aspermia. I started him off on gonadogen and we did not have much luck with that material, so I gave him antuitrin S, and that gave the desired result. I do not know much about these endocrine things. The androgens will not produce spermatogenesis, so I think we should use antuitrin S. I have had very little experience with vitamin E in the male.

Dr. Victor D. Lespinasse, Chicago: Sterility or childlessness is a problem that is very close to my heart, as I have burned much midnight oil reading, experimenting and thinking about it.

Dr. Scrivner has brought out most of the salient points, but there are also some important ones that should be emphasized. First, the examination of the semen, which has three main objectives: Presence or absence of spermatozoa; morphology and number of spermatozoa; and motility of spermatozoa, both as to speed and duration.

If spermatozoa are absent from the semen (a condition known as azoospermia), the case is a surgical one and should have one of the following operations performed: direct vasoe epididymostomy (Lespinasse), vas-anastomosis (simple or crossed) or the Lespinasse sac operation.

If spermatozoa are present, then their number, size, shape, speed and duration of motility should be determined by appropriate technic, always remembering that the spermatozoa in any of the relationships are not static but vary from day to day, depending upon the individual's activities, diet, sex life and health. They may tend to have a level or average for each individual; they are dependent on the nutritional and endocrine status of the individual.

It is important and essential that any defects in nutrition or endocrine relations should be remedied by appropriate drugs, hormones, vitamins or foods.

One further point should be observed and this point is very important. The semen, to be of most value, should be obtained from a real, desirous, passionate intercourse and not one perfunctorily performed at nine o'clock or five o'clock, the only purpose being to produce a specimen for the doctor. So my instructions are to wait a day or two, and then when the spirit moves for an intercourse, have it primarily for intercourse sake and then when it is completed, take the specimen to the doctor's office. Thus you obtain a real, true specimen and the findings are reliable.

I feel that before any action is taken, and particularly any operations performed on the husband, at least two specimens of a good libido semen should be examined and they should check.

THE CAUSES AND PREVENTION OF BLOOD TRANSFUSION REACTIONS

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The last few years have witnessed a tremendous increase in the therapeutic use of blood transfusion. At the Michael Reese Hospital, for example, the number of transfusions given increased four-fold in the past five years, from an already high figure of 500 per annum in 1936 to approximately 2,000 in 1940. This broadening in the application of blood transfusion has coincided largely with the general acceptance of the indirect method. When the citrated blood transfusion was introduced by Lewisohn¹ in 1915, it was not generally adopted because of the belief that citration impaired the value of the transfused blood and, more importantly, because

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of the fear of the chill reactions. These reactions were thought to be inherent in the citrate method. The intervening years have failed to disclose any striking impairment in the therapeutic value of blood by citration. Recently, it has been convincingly shown² that citrate transfusions need carry no higher incidence of febrile reactions than do the direct methods, and that such reactions can be largely avoided by scrupulous cleanliness in the preparation of solutions and equipment. As a result, there has been a rapid and universal swing toward the citrate method of transfusion. Growing out from citrate transfusions have come the blood banks, plasma and serum transfusions, and other innovations that have further augmented the popularity of transfusion therapy.

The facility with which modern transfusions are done, and their very wide employment, carry with them a challenge that we control the incidence of untoward reactions. The purpose of this paper is to describe the evolution of the Blood Transfusion Department of the Michael Reese Hospital, and to trace the gradual diminution in the incidence of post-transfusion reactions.

For a number of years prior to 1937, the Strauss³ modification of the Lindeman method of transfusion was used routinely in the Hospital. This method employs multiple large syringes which are alternately filled from a cannula in the vein of the donor and immediately emptied into the vein of the recipient. The syringes are successively rinsed in water, saline and citrate solutions. This study of the incidence of blood transfusion reactions was begun during the time that the above method was being used, with an analysis of the incidence of reactions in a series of 500 consecutive transfusions given during the year 1936.

When the citrate method was re-introduced into the Hospital, there was, almost overnight, a complete turn from the direct to the indirect method. The first citrate transfusions were done by essentially the original Lewisohn technique. The blood was drawn from the donor into a beaker or flask containing citrate solution, and carried to the patient's room, where it was infused by gravity, using several thicknesses of gauze to filter out small clots. As was to be expected, reactions occurred which called for the

development of better methods. A second series of 500 consecutive transfusions drawn from this period was analyzed for comparison of the incidence of reactions.

To improve the results of blood transfusions, a new transfusion department was organized. It was apparent from the start that there were numerous potential sources of error and disaster in the multiplicity of preliminary steps associated with the operation of blood transfusion. The first requirement, therefore, seemed to be the centralization of all of the component steps of the procedure into one department, under the sole and unified responsibility of a single administrator. Obviously, if the typings and compatibilities were done by one group, the solutions made up by another and sterilized by a third, the equipment cleansed and assembled by still another, *et cetera*, it would be impossible to place responsibility or to determine the source of reactions, if they did occur.

The second requirement seemed to be special quarters and personnel allotted exclusively to this important work. Bleeding rooms were provided for the sole purpose of drawing blood for transfusions, and space was set aside for the cleansing and assembling of the apparatus. Full-time technicians and their assistants were assigned to carry out these functions. In this transfusion center, all of the phases of the operation, from the washing of the tubing to the bleeding of the donor, were done. To obviate errors in compatibility, well-trained technicians were made available 24 hours a day. Blood groupings were done, of course, on all recipients and prospective donors, and reciprocal cross-agglutinations of cells and sera of both patient and donor. Only high-titer testing sera were used for typing, to prevent errors from the presence of weak agglutinins.

In order to reduce the possibilities of contamination with foreign protein material, which might be capable of giving rise to pyrogenic reactions, commercially prepared vacuum flasks containing citrate solution were adopted. These flasks are sealed and sterile, and are free from pyrogenic contaminants. The technic of their use is very simple. Blood is drawn by vacuum through a short length of rubber tubing from

the cubital vein of the donor, into the closed flask. When the needle is withdrawn from the stopper, a sealed, sterile bottle of citrated blood is available for immediate infusion, storage, or conversion into serum or plasma, as may be desired. Injection of the blood is done by gravity through an infusion set which is equipped with a drip-chamber and a fine-gauge metal filter to remove minute clots.

The Transfusion Department was made responsible for the maintenance of adequate active lists of professional donors. Rigid requirements were established for persons desiring to give blood for transfusion. Only healthy young males with good veins are selected. A careful history is taken of each candidate to rule out allergy, tuberculosis, malaria and syphilis. Record is made of previous infections from which the donor has recovered, for use when immune transfusions may be desired. A complete physical examination is done, including Wassermann and Kahn tests, complete blood counts, and differential blood smears. No professional donor is used oftener than once in six weeks, and the serological tests are repeated every six weeks. In addition, the genitalia and the oral cavity are inspected immediately before blood is drawn for transfusion, in order to rule out recent syphilitic infection. Donors must remain on call, and be within 20 minutes reach of the hospital. It is thus possible to deliver blood to the patient within 30 minutes from the time the call is received in the transfusion center.

When friends or family-members wish to act as donors, such careful selection cannot be made. Nevertheless, in addition to the typing and compatibility determinations, an immediate Kahn test is done and, if possible, the genitalia and oral cavity are inspected for evidences of early syphilis.

Special attention is given to the problem of cleansing and assembling transfusion apparatus. As has been stated, full-time employees carry out these tasks in space set aside for the purpose. Metal and glass parts are thoroughly washed in acid solution and distilled water. Rubber tubing is boiled, first in weak sodium-hydroxide solution, then in distilled water.

In order to be sure that no pyrogenic foreign material remains in the equipment, a sample of

the final washings are subjected to a "pyrogen test." This consists of injecting such fluid into the veins of rabbits. If protein contaminants are present, the animal exhibits a typical chill and fever reaction, identical with that seen in human beings. This constitutes an accurate biological check on the safety of the equipment.

A system of checks and double-checks has been developed to prevent erroneous labelling of the blood samples when several transfusions are being prepared at the same time, and to prevent injecting the blood into the wrong patient. Furthermore, a careful follow-up has been instituted to record the post-transfusion course. This not only permits an accurate determination of the incidence, type and severity of reactions, but also makes it possible to check back and trace the source so that it may be eliminated.

BLOOD TRANSFUSION REACTIONS

We have classified our reactions under three headings, the pyrogenic, allergic and hemolytic. Pyrogenic reactions constitute far the greatest number of post-transfusion disturbances. They consist of a sharp elevation of temperature, coming on during or shortly after a transfusion, with or without an accompanying chill. If the maximal temperature elevation exceeds two degrees, it is classed as a major reaction, otherwise it is considered to be minor. These chill and fever reactions are not, of themselves, dangerous. However, the added load they may impose upon patients already critically ill cannot be disregarded.

It has been convincingly shown that chill reactions are almost invariably due to the inadvertent injection of foreign protein material into the blood-stream. The source of protein contamination may be bits of old blood left in the tubing or needles, powder from the tubing, or pyrogenic material incompletely removed from the water during the process of distillation. The potential sources are, therefore, legion, and only by scrupulous care and everlasting vigilance can such reactions be averted. When they do occur, prompt revision of the entire process, with repetition of the pyrogen test, is in order, so that the source of error may be detected and eliminated.

Allergic reactions are rarely serious. They

usually manifest themselves by urticaria, less frequently by asthma or other visceral disturbances. Such reactions have been known to occur following repeated transfusions from the same donor, or from donors with definite allergic tendencies. Blood drawn soon after the donor has eaten may also give allergic reactions. Allergic persons, therefore, should not be used as blood donors and, whenever possible, blood should be drawn during the fasting state.

Hemolytic reactions are always serious, and may be fatal. They are due, as a rule, to the transfusion of incompatible blood. Fortunately, with the use of careful typings and compatibility tests, such reactions are extremely uncommon. *No such reactions have occurred in the entire series of transfusions here reported*, nor have any been seen during the entire duration of the Transfusion Department. The clinical manifestations of hemolytic reactions are severe lumbar pain, dyspnea, chills, varying degrees of collapse, vomiting, followed by jaundice and hemoglobinuria. These may lead to oliguria or anuria, and death from uremia may ensue. The prevention of this type of reaction demands utmost care in the performance of the typing and compatibility tests. Emphasis is placed upon the use of only high-titer testing sera. All question-

able bloods should be rejected. Cross-typings of both cells and serum of donor and patient should be done. These precautions will obviate the danger of sub-group agglutinations and, as will be shown later, will permit the safe use of universal donors.

Incidence of Reactions. In order to determine the actual incidence of blood transfusion reactions, and to compare this incidence with successive modifications in the technique of transfusion, we have studied five series of 500 transfusions each. As has been stated, the first series was drawn from the period in which the direct method was being used, and the second from the period of "open" citrate transfusions. A third sample of 500 cases represents the early experience in the new transfusion center. A fourth series was taken during the second year of the activities of the center, and a final 500 recent transfusions represent our present incidence of reactions.

The results of this study are seen in Table I. It will be noted that the direct method gave a rather high incidence of reactions (9.6%), chiefly of the pyrogenic type. This, in retrospect, is not surprising in view of the fact that the importance of removing pyrogens from equipment and solutions was not appreciated. It is a trib-

TABLE I
INCIDENCE OF REACTIONS FOLLOWING TRANSFUSIONS

	Major	Pyrogenic Reactions Minor	Total	Allergic Reactions	Hemolytic Reactions	Total Reactions
Series I						
500 Consecutive Direct Transfusions (multiple syringe) 1936	25 (5.0%)	14 (2.8%)	39 (7.8%)	9 (1.8%)	0	48 (9.6%)
Series II						
500 Consecutive Indirect Transfusions (open method) 1938	30 (6.0%)	5 (1.0%)	35 (7.0%)	2 (0.4%)	0	37 (7.4%)
Series III						
500 Consecutive Indirect Transfusions (Early New Method) 1939	19 (3.8%)	7 (1.4%)	26 (5.2%)	10 (2.0%)	0	36 (7.2%)
Series IV						
500 Consecutive Indirect Transfusions (Recent New Method) 1940	8 (1.6%)	6 (1.2%)	14 (2.8%)	5 (1.0%)	0	19 (3.8%)
Series V						
500 Consecutive Indirect Transfusions Feb. to May, 1941	3 (0.6%)	8 (1.6%)	11 (2.2%)	4 (0.8%)	0	15 (3.0%)

ute to the method, which permitted but little contact of blood with foreign surfaces, that reactions were not more numerous. The first citrate transfusions showed, surprisingly, a slightly lowered incidence of reactions (7.4%). The multiple potential sources for these mishaps has been mentioned. Nevertheless, there was probably less contact with impure solutions, resulting in the lowered incidence of febrile reactions.

The first 500 transfusions under the present set-up (Group III) were somewhat disappointing. Although there was some reduction in the number of reactions, this was not as striking as had been anticipated. However, adequate records and the use of the pyrogen test permitted a progressive elimination of the various responsible factors. This is reflected in the fourth series, in which the total incidence of reactions was 3.8%, and the major febrile reactions had been reduced to 1.6%. The last series of 500 recent consecutive cases shows a total incidence of slightly over 2% reactions, and *only 0.6% major pyrogenic reactions*. This very creditable figure proves the possibility of reducing transfusion hazards to a minimal figure. With continued alertness and further improvement in technique, there is every reason to expect still more reduction in transfusion reactions.

Further analysis of a series of 1,000 consecutive transfusions to determine the relationship between the frequency of reactions and the disease state for which transfusion was done indicates that certain pathological conditions predispose to the various types of reaction. (Table II) Thus, blood dyscrasias gave a much higher frequency of pyrogenic reactions than did other diseases, while ulcerative colitis gave an excessive number of allergic reactions. Septic states, generally, seemed to predispose to febrile reactions, suggesting that these persons are sensitive to minute and otherwise innocuous quantities of pyrogenic material. Chill reactions in these patients could be prevented by giving multiple small transfusions, none exceeding 250 cc. of blood.

The incidence of reactions following transfusion of blood from universal donors, as compared with blood from donors of the same blood group as the patients, is revealed in Table III. It will be seen that the incidence is actually lower in

TABLE II

THE INCIDENCE OF TRANSFUSION REACTIONS IN PATIENTS CLASSIFIED ACCORDING TO DIAGNOSIS AND DEPARTMENT

		No. of Pyogenic Trans- Re- fusions actions %			Allergic Re- actions %		Total Re- actions %	
Medical Patients	Gyne. Surgery	56	4	7.1	1	1.8	5	8.9
	Orthoped. Surgery	29	0	0.0			0	0.0
	All other Surg. Depts.	415	10	2.4	3	0.7	13	3.1
Surgical Patients	Blood Dyscrasias	45	8	17.7			8	17.7
	Ulcerative Colitis	50	1	2.0	5	10.0	6	12.0
	All other Medical Diseases	340	13	3.8	5	1.4	18	5.2
	Obstetrics	65	4	6.1	1	1.5	5	7.6
Totals		1,000	40	4.0	15	1.5	55	5.5

TABLE III

INCIDENCE OF REACTIONS IN PATIENTS TRANSFUSED WITH BLOOD OF THE SAME TYPE AND IN THOSE RECEIVING BLOOD OF A DIFFERENT TYPE (UNIVERSAL DONOR BLOOD)

	Number of Transfusions	Pyogenic Reactions	Allergic Reactions	Total Reactions
Patients and Donors of Same Blood Group	780	35 (4.5%)	12 (1.5%)	47 (6.0%)
Patients and Donors of Different Blood Group	220	5 (2.2%)	3 (1.4%)	8 (3.6%)
Total	1,000	40 (4.0%)	15 (1.5%)	55 (5.5%)

the former group. We believe, therefore, that it is safe to administer universal donor blood to patients of other blood groups provided, by the use of high-titer testing sera, the correct type of the donor's blood is assured. Careful direct compatibility tests between recipient and donor bloods must be made to rule out anti-o agglutinins in the patient's serum.

SUMMARY

1. The control of blood transfusion reactions demands centralization of responsibility over all of the component steps of the operation, careful supervision of the numerous potential sources of

error, and everlasting alertness to trace and eliminate factors causing untoward reactions.

2. The organization of a Blood Transfusion Department for a general hospital is described.

3. Five series of 500 transfusions each are analyzed, tracing the gradual elimination of the causes of reaction with corresponding improvement in the results.

4. The pyrogen test is an effective aid in controlling the preparation of solutions and equipment.

5. Reactions following transfusion are classified as pyrogenic, allergic and hemolytic.

6. Pyrogenic reactions, characterized by chills and fever, are most frequent. They are almost invariably due to the presence of foreign contaminants in the solutions or apparatus. Sepsis and blood dyscrasias predispose to pyrogenic reactions.

7. Allergic reactions are usually urticarial in nature. The chief causes are donors with allergic tendencies and blood taken shortly after the donor has eaten. Patients with ulcerative colitis seemed to be predisposed to allergic reactions.

8. Hemolytic reactions are due to the infusion of incompatible blood. This can be avoided only by careful preliminary typings and reciprocal cross-matchings, the use of high-titer testing sera, and the rejection of all bloods giving questionable agglutinations. There were no hemolytic reactions in our series.

9. Universal donor blood gave no higher incidence of reactions than did blood of homologous groups.

10. Our statistics reveal a reduction in the reaction incidence from 9.6% to 2.2%. Only 0.6% of the latter figure were major pyrogenic reactions. Our experiences point the way to further reduction in the incidence of transfusion reactions.

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DISCUSSION

Dr. Frederick Christopher, Winnetka and Evanston: I would like to ask Dr. Zimmerman if he has ever encountered an instance where, with the same donor, there was no reaction in the first instance on the part of the recipient and on the second occasion an allergy has been shown that was not present in the first case.

Dr. C. Paul White, Kewanee: Does the time element enter there?

Dr. Zimmerman: We do not use the same donor oftener than once in six weeks.

Dr. Week: We have had to use them more often than that.

Dr. Zimmerman: I am not in position to know whether the time element would be a factor.

Dr. White: I have had the experience of using the same donor within a week and ten days and having no reaction and then using him three months later and getting a reaction.

Dr. R. A. Matthies, Hinsdale: Does a reaction early in a transfusion have any especial significance? I have recently seen reactions occur after 80 or a 100 c.c. of blood have been infused, and wondered if reactions occurring regularly after such amounts have been given were of any special significance in determining the cause.

Dr. Zimmerman: In answer to Dr. Christopher's question, I think that is the typical set-up which predisposes to allergic types of reaction, namely, the use of multiple transfusions from the same donor where no allergy was noted in the first transfusion but may be observed in subsequent transfusions.

Needless to say, when the same donor is used more than once, the typing and compatibility are repeated before each successive transfusion.

One question was whether reactions occurring early in the course of transfusions are of any significance. I would feel that a reaction occurring early in transfusions is of utmost significance and could very well be precursor to a very serious hemolytic type of reaction. Therefore, when any type of reaction takes place during the course of a transfusion, the transfusion should be interrupted at once and, if necessary, adrenalin or other stimulants administered.

With reference to the methods used, I thought I had made it clear. In the last several years, since 1939, we have used the Baxter solutions and vacuum flasks exclusively. By this method a needle is inserted through a stopper into a vacuum bottle in which there is citrate solution. There is a valve attached to the needle and a bleeding needle attached to a short length of rubber tubing. The needle is inserted into the patient's vein, the valve opened slightly and then the vacuum within the bottle draws up the blood from the donor into the bottle. When the needle is withdrawn, one has a closed, sterile flask of citrated blood which can be put on the shelf, can be used im-

mediately, or can be converted into blood or plasma as desired.

Injection is through the infusion apparatus. There is a drip chamber and also a fine-gauge metal filter which acts to filter out any small clots should they happen to form.

Dr. Chester R. Zeiss, Chicago: In regard to using the Baxter method, with cross-matching and accurate typing I do not see why a reaction should occur if the individual were not in a toxic state.

Dr. Zimmerman: I pointed out that there were innumerable factors responsible for reactions. Cross-typing will eliminate possibilities of a hemolytic reaction, and we have found in our series no hemolytic reactions. However, I will give you just a few examples of the causes of groups of reactions that we have had with the use of Baxter solution.

At one time we had a group of six, eight or ten transfusion reactions and then it was discovered that a new batch of tubing had been introduced and the boys entrusted with the work of cleansing the tubing had not removed all soluble material present in the tubing. Recently, the last aggregate of six or seven reactions that we had were extremely difficult to trace. We finally found that in cleansing the valves they were not taking the valves apart; they were merely flushing them through with several washings of distilled water and those washings did not give a pyrogenic reaction. But when those valves were unscrewed, on the inside there was a small chamber in which there were small flecks of clotted blood. When those were cleaned out with a brush, the reactions promptly disappeared.

A break in technic anywhere along the line will give reactions of a pyrogenic nature, even though the cross-matchings and compatibilities are perfect and even though one uses the closed, sterile flask method of transfusion.

We would not have too many beds for tuberculosis but too few if funds were available for adequate case finding in most areas. L. J. Webster, M.D., Minn. Med., Mar. 1941.

Tuberculosis is a deep-seated social problem beset with economic and administrative difficulties not encountered in any other disease. Charles R. Reynolds, M.D., Bull. Nat'l. Tuber. Assn., Aug., 1940.

The trend toward surgical treatment of tuberculosis is perhaps the most significant and far-reaching change which has come about in the tuberculosis hospital field. This has involved changes in design and equipment of the hospital, in the organization by the staff, in provision for nursing of surgical cases, and development of closer relations with general hospitals. Wherever the tuberculosis hospital is not prepared to meet the demand for better operating rooms, laboratories, and roentgen ray equipment, the facilities of the general hospital must be utilized. Editorial, Penna. Med. Jour., Mar. 1940.

THE CLIMACTERIC AND THE MENOPAUSE

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The words Climacteric and Menopause are frequently used synonymously. However, they are not true synonyms.

The life of woman is divided into three sections:

1. Growth period, in which the entire organism undergoes progressive changes. As far as the gynecologist is concerned, the most important changes are in the generative organs, and particularly the endocrine glands.
2. Maturity or menacme, the child bearing period.
3. Senescence, the period under discussion at this time.

I wish, first, to briefly discuss the clinical manifestations of the climacteric. These may be divided into three phases:

- a. *Nervous symptoms.* Those women with stable nervous systems do not develop neurotic or psychotic manifestations during the climacteric. Those who have suffered from menstrual headache and, or from dysmenorrhea, the menopause comes as a delightful relief. In spite of this, however, the realization of advancing years is more or less a shock. Then too, the fear of decreasing feminine attractiveness with its concomitant results weigh heavily on the mind of some to the extent of producing certain psychotic symptoms. The old superstitions are many times responsible for these fears.
- b. *Circulatory symptoms* are the result of vasomotor instability caused by endocrine imbalance. The symptoms are hot flashes in 60 to 90% of the women, tachycardia, arrhythmia, dyspnea, and choking sensation.
- c. *Local pelvic symptoms* are atrophy of the genitalia, loss of ovarian function, senile vaginitis. The vaginal mucosa may become ulcerated and bleeding. The loss of tone in the pelvic structure may result in prolapse, cystocele, and rectocele.

THE ENDOCRINE BASIS OF THE CLIMACTERIC

1. The changes in hormone production.
 - a. Decreased blood levels and urinary excre-

tion of estrogens. The decrease is rarely 100%; some still persists. The remaining part is suspected to be partly of dietary origin and partly of extra-ovarian (?) origin.

- b. Increased blood levels and urinary excretion of gonadotropic hormones.

The normal woman excretes small amounts of gonadotropin on certain days of the cycle; the menopausal or castrate woman excretes it continuously and at much higher levels. The gonadotropin is definitely of pituitary origin and consists mainly of follicle-stimulating factors, in which respects it differs from the gonadotropin of pregnancy origin, which is mostly luteum-stimulating, and present in enormously high concentration.

- c. Other pituitary hormones (thyrotropic, and adrenotropic) have been suspected to be increased in output also. The evidence, however, is not so good as for the above.

2. What is the primary cause of these changes?

- a. The primary pathology in the climacteric seems to be a "senescence" of the ovary, which undergoes atrophy and fails to develop any more ova. That the deficiency is primarily ovarian is indicated by the facts that;

1. The menopausal ovary appears unable to respond to the increased production of gonadotropic hormones by the pituitary.
2. The menopausal ovary is unable to respond to administered gonadotropic hormone (pregnant mare's serum.)

3. What caused the changes in sexual characteristics?

- a. There seems little doubt that the amenorrhea, genital atrophy, and loss of secondary sexual characteristics are the direct result of ovarian hormone deficiency. They can all be restored by the administration of estrogenic preparations.

4. What causes the subjective symptoms? (Vasomotor and emotional instability, etc.)

- a. A personality or psychic factor probably

influences the degree of subjective symptoms, but does not initiate them.

- b. Estrogen deficiency.

Attempts to correlate blood estrogen levels with the severity or duration of symptoms have been unsuccessful. For example, many women exhibit climacteric symptoms before the estrogen level falls sufficiently to interrupt menses; some women continue to excrete considerable quantities of estrogen, yet have severe symptoms; symptoms may not occur at all, although menses cease; frequency of flashes is not related to the blood estrogen level. Some believe this indicates that estrogen deficiency is not the cause of the subjective symptoms, but the poor correlation may be the result of the influence of the personality factor, for example, and the notorious unreliability of the blood estrogen assay.

- c. Gonadotropic excess.

A rough correlation has several times been reported between the gonadotropic level and the severity of subjective symptoms. This has led some to believe that the gonadotropic hormones are directly responsible for the symptoms.

However, the latest, most extensive, and by far the most accurate and reliable investigation reveals no relation at all between the gonadotropic level and the age, menopause symptoms, hysterectomy or uterine involution, but the correlation is very good with the cyclic state. Women with normal cycles show a very low level, women with irregular cycles show fluctuating levels, and acyclic women (menopause or castrate) show uniform, 20-fold increases. Of considerable significance is the fact that the high levels persist indefinitely (in contrast to symptoms) and that successful therapy with estrogens only partially reduces the high gonadotropic level. Hence the theory that the symptoms are due to gonadotropic excess is scarcely tenable.

THE DIAGNOSIS OF THE MENOPAUSE

The diagnosis of the climacteric is not difficult. Occasionally one has to decide whether he is dealing with menopause or pregnancy. Time, of course will answer this question. Friedmann test may be of service, however, too much credence must not be placed on a positive result, because in the menopause the absence of ovarian hormones cause a relative increase of anterior pituitary gonadotropic hormone.

The important consideration in the diagnosis is the danger of overlooking some condition that is not strictly a part of the climacteric. The question of "menopausal bleeding" is misleading. All uterine hemorrhage at this time may also be found in earlier life. There is, however, an increasing tendency to malignancy and other causes of bleeding, such as: bleeding fibroids, polypus, erosion of the cervix, and endometritis.

The extent of change in Ph in vaginal secretion was invariably associated with estrogen deficiency. J. S. Beilly¹ discusses Ph of vaginal secretion as an index of ovarian activity in hypo-ovarian states.

General Management: It is of first importance to remember that during the fifth decade diseases affecting the joints, heart, kidneys, blood, blood vessels, pelvic organs, and endocrine glands are likely to appear. The management of the menopause must then include both general and specific measures.

The first consideration should be given to the general health. Proper relation of rest to exercise should be secured.

Bearing in mind the tendency to the so-called "middle-aged spread," the diet should be regulated to control that, and at the same time be planned to provide an adequate amount of nutrition. Mental and emotional rest is as important as physical.

Specific Treatment: Endocrine Therapy. Estrogenic hormone is the primary agent in endocrine therapy. This is on the market under several trade names. Only standardized preparations should be used.

The dose seems to be a moot question, from 2000 International Units up, are suggested by various clinicians.

The question of hypodermic or oral route has also been discussed. The consensus of opinion

seems to be hypodermic to start the treatment, later followed by oral.

I like to start with 2000 I. U. daily by hypodermic, and if this does not relieve the symptoms, increase the dose until relief is secured, then follow with oral medication to obtain the desired result.

As early as 1896, the Landau Clinic in Berlin advocated the use of ovarian substance in the treatment of menopausal disturbances. Many clinicians believed that such treatment was of value. Soon, however, the physiologists proved that many of the substances used were practically inert. The next progress was the discovery of internal secretion in the ovary, with the result that now we have the hormones available in such form that the laboratories have proven their potency in standardized preparations. Clinically, we still do not know the mechanism by which vasomotor disturbances are produced, neither do we know with anything like precision, the required dose for a given patient.

Preparations:

1. Estradiol, estriol, and estrone, given intramuscularly, usually initially, but frequently oral maintenance doses are used.
2. Stillbestrol is given orally throughout. This synthetic estrogen is not yet on the market, but is up for consideration for acceptance. It is remarkably cheap, and very potent. Definite side effects are nausea, vertigo, and vomiting.² Conclusive evidence is now at hand to the effect that these side-effects are due to the fact that it is so readily absorbed and transported. The rapid absorption results in the higher concentration in the body fluids. Equally excessive doses of natural estrogens will produce the same reactions.³ Moderate but effective doses do not produce the side action.
3. Progestin is expensive and not as effective as estrin.
4. Progynon-Benzate. Dosages of 4000 Rat Units, totalling 24,000 R. U. proved adequate in rapidly abolishing hot flashes, and controlling fatigability, depression, headaches, palpitation, and dizziness as well, and also some digestive disturbances and joint symptoms. The duration of relief varied from one to eight weeks.⁴ At the same time there were progressive changes in vaginal smear and biopsy.

Duration of Therapy: Permanent relief is not obtained unless therapy is continued for some time. Withdrawal of therapy results in return of symptoms in weeks or months. If maintenance dosage is gradually reduced, therapy may

finally be stopped without symptoms in two or three years for the average patient.

Sevringhaus⁵ mentions two situations in which reduction in dosage is indicated. One is the occurrence of vaginal bloody flow, the other is the stimulation libido to an uncomfortable degree.

Effects of Therapy: There is pretty general agreement that the therapy is highly effective. L. H. Hawkinson⁶ Brainerd Clinic, Minn., reporting one thousand consecutive cases claims 84% completely or partially improved, 5% unimproved, and 11% doubtful, or patients who did not return for check-up or more therapy. Five hundred patients received estrogenic preparations in oil, 10,000 to 50,000 I. U. After considerable trial, it was found that 10,000 I. U., every three to four days for about twelve injections controlled the symptoms. Two hundred and ten patients were treated with oral preparations, the dosage ranging from 180 to 6000 I. U. daily.

The majority of symptoms were relieved for from fifteen to sixty days. He also claims that flashes, chills, excitability, depression, palpitation, and insomnia clear up in two to three weeks. Sweating, fatigue, lassitude, and headaches require somewhat longer treatment.

There was some return of uterine bleeding in 22%. There was also marked restoration of breasts and external genitalia.

Involutional melancholia, pruritus vulvae, senile vaginitis, respond well. There was no response of obesity or arthritis.

Menopausal hypertension responds, but not hypertension due to other cause.

Robert Schaefer,⁷ reports thirteen subjects treated for hypertension. In these cases, there was a substantial reduction of blood pressure as well as amelioration of associated symptoms. Theelin, in varying doses was given depending upon the severity of the symptoms.

Danger of Therapy:

- a. None noted.
- b. Danger of inducing carcinoma is remote even theoretically, and clinical experience has given no cause for worry on this score.

Treatment of Nervous Manifestations: Treatment should consist of potent estrogen in oil, 2,000 I. U. every other day until the patient shows definite improvement (absence of depression and psychosis); then give 1,000 I. U. intra-

muscularly three times a week for from one to two months, and if the improvement continues, gradually taper off the dosage. If symptoms should recur some time after the cessation of treatment, it should be reinstituted. Along with the injections of estrogen, it may be well to give the patient effective doses of mild sedatives four times a day, such as Chloral Hydrate, Elixir or Phenobarbital and Sodium Bromide, to quiet the nervous system until the endocrine treatment becomes effective. Some hypnotic tablet may be given at bedtime for sleep.

Roentgen treatment of the ovaries to inhibit or destroy their function is recommended by some for hypoovarian states, if used the treatment should be very light. Others believe that it is unnecessary, as the ovaries are hypofunctioning at present, and there is a possibility that the ovaries might have some other activity than Graafian Follicle development and ovulation.

Be patient and persistent with the treatment and considerate of the patient, for she is physiologically ill. One must be sure that there are no other ailments, as the patient must be treated as a whole, and not as an aggregation of glands.

Vaginal smears: As an indication of Ovarian Follicular Hormone action in the Menopause. (Papanicalou and Shorr⁸).

Advanced menopausal cases show the presence of numerous compact round or oval cells which possess large well-preserved nuclei. These cells are derived from the deeper layers of the vaginal mucous membrane and are rarely seen during the normal menstrual cycle.

The relative scarcity of superficial cells and abundance of deep cells are the result of thinning of the epithelium and absence of well developed superficial zone.

Leukocytes are also numerous as the result of unhampered migration through the thin epithelial wall. Erythrocytes are present and point to a type of bleeding known as menopausal atrophic bleeding.

Cases of more moderate atrophy show a less well-defined picture. The cells are not distinctly outlined and tend to be clumped, and there is evidence of cytolysis and the presence of bacteria. These are the cause of a dirty, smudgy appearance.

While there is quite a variation in the appear-

ance of the menopausal smear, the changes induced by treatment are remarkably uniform. The characteristics are disappearance of the leukocytes and erythrocytes, and the replacement of all other cells by flat well outlined cells, many of them cornified with pyknotic nuclei, which give a clean, clear cut appearance to the slide.

SUMMARY AND CONCLUSIONS

The type of patient determines to a large extent the severity of nervous symptoms. Circulatory symptoms are dependent upon endocrine imbalance. There are definite pelvic changes.

The endocrine basis of the climacteric seems to be well established. We have attempted to show the causes of various changes and subjective symptoms. The efficiency of endocrine therapy is well proven, particularly by the changes produced in the vaginal mucosa.

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DISCUSSION

E. Graham Evans, Aurora: Dr. Nash is to be congratulated on his excellent survey of the climacteric. It was particularly pleasing to see his emphasis on the management other than specific therapy. It has been known for many years that ovarian products which were physiologically inert would cause improvement of the symptoms and at the same time we find today that physiologically potent products will at times have no effect. This is due to failure of treatment of the psychological aspects of the climacteric. Certainly no mode of therapy is complete without one or more careful discussions of the physical changes which make up the entire picture. As a woman approaches the climacteric she is frequently very much upset by misinformation which is given her at her bridge clubs. The symptoms are usually most exaggerated as she only hears of the severe reactions and has little knowledge of the fact that many women can go through the entire change with practically no symptoms. She frequently is concerned that she may lose her attractiveness and her libido and as she becomes more upset mentally this sets up a vicious cycle whereby her symptoms become exaggerated and if the true nature of the condition is properly explained and the woman is assured that the diminishing function of her ovaries will not interfere with her sex

life or her attractiveness, this vicious cycle which aggravates her condition can usually be broken up and with the assurance that the use of estrone to relieve the specific symptoms, the patient can be brought into a much better mental state.

Diet to control the weight gain which as Dr. Nash stated, is not affected by estrone therapy, is also extremely important.

As far as the specific therapy is concerned I have nothing further to add with the exception of noting that a large percentage of cases can be adequately carried along on oral therapy although this is usually best preceded by a series of injections. Stilbestrol on which acceptance has still been delayed is certainly the most potent of all the forms of therapy although its reactions may be distressing. Other of the commercial oral preparations will usually suffice to control the case after a preliminary series of injections and certainly a part of the efficacy of the oral preparation is getting away from the use of hypodermics which are frequently disturbing to the patient.

Exception must be taken to the statement that the danger of inducing carcinoma is practically nil.

I wish to quote a brief excerpt from a recent article by E. A. Doisy,¹ one of the pioneers in estrogen studies, who states as follows: "There seems during the last five years to be a definite trend toward massive dosage with both natural and synthetic estrogens. Perhaps this will eventually prove to be satisfactory, but in the meantime it does not seem wise to be incautious. Within another five or ten years any subacute damage which may have occurred will begin to make its appearance.

"The increased incidence of malignant change following administration of estrogens to cancer-susceptible strains of animals serves as a definite warning. While it is true that the dose per kilogram of body weight is much higher than the amounts commonly used therapeutically in the human patient and that the most pronounced carcinogenic reactions are obtained in susceptible animals, still it seems unwise to ignore the possibility of accelerating or starting the growth of cancer in susceptible persons. Certainly, the treatment of patients having cancer should be undertaken with a full recognition of the possibility of untoward results."

Dr. J. P. Greenhill, Chicago: Dr. Evans has most ably described the preparations used in the treatment of menopausal disturbances. Dr. Nash I am sure had a similar discussion in his paper because it is very important.

When we think of therapy for menopausal disturbances we think first of endocrine products. That is a serious mistake. We should consider the patient as a woman and not as a group of glands. Therefore, we should first treat the mind by a heart to heart talk about the change of life.

1. Doisy, E. A., *Glandular Physiology and Therapy: The Estrogenic Substances*. J.A.M.A. 116: 501-505, February, 1941.

Personally I feel the best results with the estrogens are obtained by giving large doses at first and then tapering off. Following this in most instances the patient can be carried along by oral preparations. Unfortunately there is no standard dosage. Some products are sold in international units, others in rat units and still others by weight in milligrams.

This leads me to a discussion of the matter of vaginal smears. These are excellent when you can properly interpret them. To me they have only academic interest for estrogen therapy. It does not matter what the result of the smear shows so far as therapy is concerned. I think the important criterion should be the patient's subjective feelings.

Now a word about stilbestrol which cannot be purchased because the United States government has refused to sanction its sale. This is because of its toxicity. Some women cannot take the drug because of the disagreeable symptoms it produces. In spite of this the drug is remarkable not only for relieving the symptoms of the menopause but also because it is very useful in stopping lactation when this is desired. Strangely enough, very few women in the puerperium have any disagreeable symptoms from it.

Dr. Evans mentioned the problem of carcinoma in relation to estrogenic substances. We are not sure whether estrogen produces carcinoma in the human being. I suggest that any woman who has had carcinoma of the breast or who has a bad family history of carcinoma, should not be given estrogen for menopausal symptoms. These women can be treated almost as well by means of testosterone propionate. Women who have bleeding following or during estrogen therapy and women who have been operated on for endometriosis, should be given testosterone propionate instead of estrogen for menopausal symptoms. In spite of the great usefulness of the estrogens and the male hormone, I urge you not to use too much of these substances.

Dr. Herbert E. Schmitz, Chicago: I would like to discuss the last statement of Dr. Greenhill in regard to the use of estrogens in a patient with carcinoma. So often in a patient with carcinoma of the cervix or uterus going through the menopause because of radiation therapy an attempt is made to control the symptoms with estrogenic substance. I think that this is contraindicated for the reason that we have such good results in carcinoma of the uterus because we can stop function in that organ. If we stimulate function by the use of estrogenic substance we will defeat our purpose.

THE PHYSIOLOGICAL CHANGES INCIDENT TO PUBERTY

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A review of the information available at present on the subject of puberty shows our knowledge to be quite ample on many insignificant points, and very meager on some of the most important ones. Thus the appearance of pubic hair in boys is certainly one of the less significant changes of puberty, but it is one of the easiest to study and so has furnished some of the most quantitative information we have. The appearance of the ability to reproduce, on the other hand, is the most essential phenomenon in adolescence, and is properly emphasized as such in dictionary definitions of puberty; but in the nature of things it is all but impossible to determine this ability directly either in the individual case or in groups for statistical purposes. Thus we have the least knowledge of this most important aspect of puberty.

If we agree that a knowledge of the normal is indispensable for the diagnosis of the abnormal, then we must deprecate the absence of accounts of normal puberty in textbooks of physiology, gynecology, and urology. The writer has before him four books on these subjects; although they vary in length from 700 to 1200 pages, they do not contain the word "puberty" in their indexes.

Hope of increasing our knowledge of this subject is offered by various investigative methods, among which statistical method at present appears especially promising. To illustrate this point is one of the purposes of this paper; another purpose is to offer a summary of the pubertal changes in the normal boy and girl.

Growth Curves in General — Harris, Jackson, Paterson, and Scammon found that the organs and parts of the body could be classified into four main categories according to the forms of their growth curves.¹ In each category the period of life from 12 to 16 years shows something characteristic.

Organs and parts of the "general type," such

Tuberculosis as a cause of death among the wives of men who died of the disease is almost three times as high as it is for all women. Among sisters, the relative frequency is 2.3 times as high. Antonio Ciocco, M.D., Human Biology, May, 1941.

Presented at the Symposium of the section on Pediatrics, Illinois State Medical Society, Peoria, May 22, 1940.
From the Department of Physiology and Pharmacology, Northwestern University Medical School, Chicago.

as the bones, muscles, lungs, and kidneys, experience a marked acceleration of growth during this period. Because these organs outweigh the other parts of the body, the weight and dimensions of the body as a whole show the same marked acceleration. The individual person shows the acceleration even more markedly than does the average for a group of people.

Organs of the "neural type," such as the spinal cord, differ from the above in that they participate little, if any, in the pubertal acceleration. In fact, as a result of fairly steady growth throughout childhood they reach adult weight early in puberty and remain constant thereafter. According to the measurements of Godin² the brain declines a little in weight during late adolescence, having temporarily surpassed its destined adult weight at about puberty.

Organs of the "lymphoid type" are of special interest because the group includes the thymus, tonsils, adenoids, lymph nodes, and intestinal lymphatic masses. These structures reach the peak of their development just before the age of 12. At this time they are, on the average, about twice their destined adult size. This is true for the average; individual structures often far exceed this. Thereafter in general there is a rapid decline. While this fact is always recorded in connection with the thymus, as being one of the few established facts regarding that organ, its importance is not always appreciated in connection with the tonsils and adenoids.

Genital Growth — Organs of the "genital type" include the testicle, ovary, uterus, and so on. These organs experience a very sharp acceleration of growth during puberty; on the average, according to the curves of Harris, et al., their weights increase ten-fold between the ages of 12 and 20. This is true for the average; for the individual organ in a particular case the rate of growth is astonishingly rapid over short intervals of time. In one case noted by Jung and Shafton³ the testicles must have doubled their weight (estimated on the basis of linear measurements) in six months and redoubled it in the following ten months; there was no reason to suppose this case unusual.

With the other external genitalia growing proportionately while the remaining parts of the body pursue entirely different growth curves, it is easy to see why many boys at puberty tem-

porarily present a picture in which the genital elements may seem entirely too prominent. This has occasionally led inexperienced examiners to suspect self-stimulation as the cause. Obviously such a suspicion is based on thoroughly confused reasoning in the matter, both as regards the place of self-stimulation in the normal sex-life and as regards the way the body grows at puberty.

Factors Determining the Onset of Puberty in Boys — The functions of the human body, including the growth of its various parts, are influenced by so many seasonal and geographic factors that no results obtained in a particular region at a particular time should ever be assumed uncritically to hold elsewhere and for all time. Mitoses in the human body have a diurnal rhythm; this was shown by studies on preputia removed by circumcision at various times of the day.⁴ Even the fingernails have an annual growth rhythm.⁵ The seasonal effect on the growth of children is so marked that some children even lose weight in February and March, the least favorable months.⁶ It was Crampton⁷ who showed that season has an effect on pubescence also; the duration of this period in boys is shorter if it includes summer. The seasonal and geographic influences affecting puberty in girls will be discussed below.

Part of the importance of Crampton's observation lies in the fact that an early puberty is at least temporarily advantageous to a boy. He found that if 100 boys between the ages of 14.00 and 14.99 years were sorted out by the pubic-hair criterion, the averages for height, weight, strength (as measured by a dynamometer) and proficiency in school were all higher in the post-pubescent group. Hence it would be of great interest to know whether there are regions, such as those of the Andes and the Rockies, where puberty might be perceptibly delayed.

Observations over a period of years or decades might also reveal a secular drift in puberty-time for boys comparable to that which will be mentioned below as having been reported consistently for girls; but no data of this sort, whether geographic or secular, have yet come to the attention of the writer.

Growth of Bone and Muscle in Boys — Porter and Smedley, according to Crampton, independently found a curious and striking correlation between weight and scholarship in each age-group of their series of boys. Smedley found that this correlation was highest at the age of 12. Crampton found that similar correlations involved height and strength; these facts proved to have a common explanation in the fact that within each age-group the post-pubescent boys were generally taller, heavier, stronger, and scholastically more proficient than the prepubescents. If it is safe to accept the widespread belief that autoerotic activity increases markedly at puberty, one must conclude that such activity does not result in demonstrable impairment of growth, strength, or scholarship.

Crampton dispelled an old idea that growth in height and growth in weight are mutually incompatible. He also showed that the prepubertal weight-rise reported by others was a statistical illusion, present in curves for averages but absent in curves for individuals. It is not always appreciated that normal individuals must deviate in both directions from an average. Surprising spurts in weight and in height growth are seen in the individual protocols given by Jung and Shafon.³

Relation of body-form to time of puberty is a difficult subject about which little can be said in boys. Of two cases of extremely late puberty in the boys seen by Jung and Shafon, one was that of an individual of rather feminine habitus, but neither subject was unusual as regarded height or weight for his age. The unsatisfactory results of attempts to classify men into leptosomic and other types⁸ do not encourage one to try to make such correlations except in dealing with widely separated racial or geographic groups.

Skin, Hair, and Eyes in Boys — In an effort to see whether there was a difference in puberty-time between light-haired and dark-haired boys, Jung and Shafon classified a number of boys in this way. The results at first seemed to show that dark-haired boys went through puberty on the average nearly two years before the lighter-haired boys. It was soon found, however, that this was a statistical paradox explained by some old observations of Uchida and of Pfitzner.⁹

These investigators found evidence, in England and in Alsace respectively, of a deepening of hair-color and eye-color during adolescence (strongest between 16 and 19). This change is best demonstrated in statistics, but is sometimes observed in an individual case. Hamilton and Hubert¹⁰ also observed it in 3 out of 4 castrated men between the ages of 35 and 45 years after the administration of testosterone propionate.

Bloch¹¹ found it possible to study the changes of the adolescent skin quantitatively. He found that English school boys suffered from acne most severely at the age of 18, when 57 per cent were exhibiting it in severe form (blackheads, blotches, and pimples). He sketched an endocrine theory to account for the increased and troublesome activity of the sebaceous glands. The condition must be described as an almost normal abnormality, since less than 1 per cent of otherwise healthy boys escape it.

Boys poorly instructed in personal hygiene are especially likely to suffer an accumulation of smegma preputii after puberty. This may be due in part to the increased activity of the sebaceous glands already noted, in part also to the seminal emissions which should begin about this time. Modern psychology offers little justification for the old beliefs that phimosis and accumulations of smegma are important inducements to autoerotic activity, that the manipulations of stretching the prepuce and cleansing the collum glandis may initiate masturbation, or (even if all the former statements were true) that the supposedly resultant masturbation is abnormal and harmful. In view of the additional fact that the prepuce has an obvious function of protecting the glands, there is now less justification than formerly for circumcising as compared with giving hygienic instruction.

The pubic, axillary, and facial hair were found by Jung and Shafon to appear in the order named. The growth of facial hair has a certain popular interest, and the age between 16.00 and 16.99 seemed to be the critical one. Of 15 boys in that age-group, 8 had not yet shaved, 1 had shaved once, 1 had shaved twice, 1 was shaving about once a month, and 4 were shaving somewhat oftener. The appearance of hair on legs, arms, chest, and abdomen was also noted by these authors, but they were unable to

make any generalizations because of the lateness and especially because of the great variability of the hair in these regions.

Thyroid, Blood, and Gastric Acidity — Jung and Shafton also found it impossible to reach a conclusion regarding the thyroids palpated in pubescent boys. No consistent enlargement was found. This is in contrast to the findings of Pryor¹² in Californian girls of a significant enlargement of this gland. The difference may be either sexual or geographic.

The iron, copper, and hemoglobin in the blood of normal adolescent children have been measured by Sachs, Levine, and Griffith.¹³ Up to the 14th year the two sexes do not differ significantly. At about this age the three values for girls become constant at the levels characteristic of adult women. After the 16th year in boys, however, the values for iron and hemoglobin rise sharply; they reach the average value for adult men by the 17th year. During the 17th or 18th year the value for copper similarly reaches the value for adult men.

A similar sexual differentiation at puberty affects even the stomach. According to the statistical work of Vanzant et al.¹⁴ at about the age of puberty the average value of free gastric acidity for boys begins to rise considerably above that for girls.

The Mammary Gland in Boys — There are no data available as to the frequency with which painful lumps under the nipples of normal pubescent boys are removed by surgeons and subsequently diagnosed as adenofibromas by pathologists, but personal communications to the author indicate that the frequency is considerable. This is simply because physiologists have not hitherto supplied a complete chronology of the growth of the male breast.

It appeared from the studies of Jung and Shafton that at least in Illinois the mammary glands of every normal boy are stimulated to renewed growth during puberty. The glandular mass (the subareolar node) is at first hard and spherical, and raises the nipple above it measurably. The nipple height thus reaches a maximum at the age of 14.2 years. Tenderness is not always present, but is sometimes quite marked. About 15 per cent of the boys are sufficiently impressed with the tenderness to re-

member it in later life. In the course of a few years the nodes soften and many vanish; but many older men retain palpable subareolar nodes.

In the experience of Jung and Shafton early and conspicuous subareolar nodes were correlated with apparent physical vigor, and the largest nodes seen in pubescent boys — nodes which in one case measured 6 cm. across — were in especially athletic specimens. This fact is explained by the observations of Selye and others, who obtained mammary hypertrophy in male rats after the injection of testosterone.¹⁵

Since the subareolar node is a normal structure, it is misleading to refer to it as mastitis adolescentium except in the event of complications. Since it is the natural result of the action of an important hormone, one can understand why Vassal¹⁶ found it a very stubborn condition to treat. It also becomes unnecessary to decide between the contentions of Stümcke¹⁷ and Laurent¹⁸ on the one hand and of Franck¹⁹ on the other; the latter suggested autoerotic activity as the cause, the two former suggested autoerotic activity as the cure, for the subareolar node.

Change of Voice — The change of voice to a deeper pitch is one of the earliest and most evident changes of puberty. That it can be prevented by castration is well-known. This fact is supplemented perfectly by the studies of Hamilton and Hubert²⁰ on human eunuchoid subjects. For each voice the pitch of conversation and actual range was recorded before and after treatment. Testosterone propionate lowered the range and pitch. Congestion and coarseness of the membranous structures accompanied treatment and were followed by prominence of the thyroid cartilage. Withdrawal of therapy permitted partial reversion, especially in pitch.

Genital Phenomena in Boys — Quantitative studies on various kinds of erotic activity in boys were published by Hirschfeld. This was an important contribution, and many additional studies of the same sort in different times and places would be desirable. This is especially true because data obtained by any kind of questionnaire method are likely to reflect to some extent the prejudices of the collector.

That various erotic manifestations, including erections, are normal in boys of all ages is now generally conceded. Hirschfeld found that 15 per cent of the boys he questioned had had sexual fantasies during or before their fifth year of life.²¹ It is generally assumed that such phenomena should increase sharply near puberty, but actual data on this point are scarce. Of 437 boys, 12 per cent had begun to masturbate before the end of their ninth year, and more than 50 per cent had begun before the end of their thirteenth year.

To some boys the first erotic dream with emission of semen comes as a memorable, even shocking, experience. If this were true for all, the phenomenon would be as well adapted to statistical study as is the menarche in girls; but it appears that most men do not recollect this event. After the rhythm of erotic dreams and nocturnal discharges is established it continues for years at a fairly constant level. At least two studies^{22, 23} of this phenomenon in the adult have been published, but systematically gathered information as to its appearance at puberty and frequency immediately thereafter seems to be lacking.

No data have been found as to the time at which spermatozoa appear in the genital secretions of boys. Such data would help to give a notion as to the time at which boys become capable of generation, though it would not be conclusive. The variations found in the semen of men of proved fertility, and the facts to be mentioned below regarding adolescent sterility in girls, would render unsafe and final deductions as to fertility in boys on the basis of finding spermatozoa.

Chronology of Pubertal Changes in Boys — The following summary probably gives the most usual order of the changes of puberty in boys. In individual cases the changes may occur in a different order. When a statement is made regarding an average it necessarily implies that normal individuals deviate in *both* directions from that average. Finally, it must also be noted that data representing some widely separated places and times cannot be applied uncritically in particular circumstances.

Year

10. Growth of neural type of organs nearly complete.
12. Maximum weight for lymphoid organs.
13. Average time for change of voice; beginning of period of rapid genital growth.
- 14.0 Fastest growth of pubic hair; fastest growth of body in height and weight; autoerotic activity in more than half of boys before this age.
- 14.5 Maximum nipple-height (most frequent occurrence of subareolar node); fastest decline of lymphoid tissues.
- 15.0 Fastest growth of axillary hair.
- 16.0 Fastest genital growth (penis and testicles).
- 16.5 About half of boys have begun to shave.
17. Blood iron and hemoglobin reach adult male level.
18. Blood copper reaches adult male level; acne reaches worst stage.

The Menarche — Studies of adolescence in girls have had the advantage over comparable studies in boys in that the menarche is so definite an epoch in a girl's life. It lends itself to exact numerical treatment and has led to some convincing and informative results.

Thus, for instance, the effect of climate on the menarche has been clearly brought out by Engelmann.²⁴ He found that girls of Norwegian stock living in the region of the Great Lakes menstruate about 18 months earlier in life than do girls of the same stock in Norway. In the same way it has been possible for Engle and Shelesnyak²⁵ to demonstrate the effect of season. They found that the menarche is a little more likely to occur in the winter months than in the summer, and that when the menstrual cycle has already been established it is liable to slowing and irregularity when summer comes. This is in agreement with the earlier findings of Kirchhoff and the more recent ones of Breipohl.²⁶

Of equal interest is the information assembled by Mills²⁶ revealing a secular drift in the time of menarche. Data obtained by a variety of investigators show that in some parts of the world the menarche has been occurring at least a year earlier than it did in the past. Such data are available from German, Dutch, and Norwegian sources; Schreiner's data²⁷ from Norway, in fact, go back as far as the year 1839. Hypotheses as to the explanation are given by Howe.²⁸

Hair-Color and Body-Build in Girls — In addition to the environmental factors just mentioned, there must be internal, individual factors that determine the onset of the menarche. In the case of boys, the attempt of Jung and Shaffton to tell whether different physical types go through puberty at different ages was found to lead to a statistical paradox. The boys had been classified as light-haired and dark-haired, and it was found that during the period of study so many boys pass from one category into the other as a result of adolescent hair-darkening that the criterion is not reliable.

Apparently the same phenomenon has been encountered in girls. Breipohl²⁹ selected the 21 darkest and 179 lightest-haired out of 284 German girls, and found that the brunettes had first menstruated at an average age of 13.02 years, while the blondes had first menstruated at 13.31. He wisely refrained from drawing a conclusion.

In the same way Pryor and Smith³⁰ compared the time of menarche of the nine slenderest with the nine broadest in their series of Californian girls. While the broad-built girls had their menarches at the early average age of 11.7 years, the average could not be computed for the slender ones because when the study was terminated they had not yet all menstruated; their average was apparently destined to be well over 14. Since the same authors demonstrated a marked broadening of contour to be an essential change of puberty, it is evident that one must be careful in drawing a conclusion.

Other Factors Affecting the Time of Menarche — Schaeffer³¹ was not able to confirm a previous report by Mayer as to a difference in time of menarche between blondes and brunettes. It is likely, however, that if more dependable criteria than hair-color or skeletal measurements are used in sorting out geographic or social groups, real differences will emerge. An example is Schaeffer's finding that 1321 Christian girls averaged 14.053 years at the menarche while 480 Jewish girls averaged 13.522 years.

Schaeffer, whose observations were made in Germany, also confirmed the findings of Szukitz in Austria, Brierre de Boismont in France, and Ravn in Denmark, that girls in the country menstruated more than a year later than girls in the city. Within a given environment, also, the daughters of wealthy families menstruated

about a year earlier than the daughters of laborers, and girls classified as strong menstruated earlier than mediocre or asthenic girls.

These last facts give rise to a complicated set of intercorrelations in which it becomes difficult to distinguish cause from effect. Evidently early puberty, large physical size, physical strength, good state of nutrition, superior intelligence, and favorable environment are mutually related in girls as they were seen to be in boys.

Advantages of Early Puberty in Girls — Carter³² noted that the disparity between premenarcheal and postmenarcheal girls within any given age group tended to become negligible with increasing age. This is parallel to Smedley's observation in boys. In other words, the advantage of having an early puberty seems striking at first, but dwindles because the retarded individuals can be shown by actual measurement to make up for lost time. This agrees further with the conclusion of Mills and Ogle³³ that a late menarche does not necessarily mean late appearance of fertility.

In fact, the ultimate advantage lies in having a menarche rather near the mean for the population in the given environment. This was found to be true in the study of Mills and Ogle;³³ if the menarche occurred much earlier or much later than the average, marriage or illegitimate first birth was delayed. Vitalli³⁴ has assembled data that show that not only very late, but also very early, menarche increases the probability of the following troubles: (1) irregularity of cycle (Schröder), (2) anomalies of bleeding (Feldweg), (3) primary sterility, habitual abortion, and prematurity (Feldweg), (4) frequency of abortion (de Torres), and (5) dystocias (Weysser). Vitalli also made a remarkable quantitative study of the milk-secretion of 1386 mothers who gave the dates of their respective menarches; it was found that girls who menstruate most nearly at the average age are most likely to have satisfactory lactation. Risopoulos³⁵ agrees with Vitalli that late menarche predisposes to some condition, probably narrow pelvis, of etiological importance in Caesarian operations; the data of Risopoulos were obtained in a comparison of the histories of 75 Caesarian patients with 5288 normal mothers.

Skin and Breast — Bloch studied quantitatively the distribution of blackheads, pimples, and blotches in girls as he did in boys.¹¹ In girls these unwelcome harbingers of puberty were sometimes found as early as the age of 7, and they reached what might well be called their pessimum at the age of 17, a year earlier than that for boys.

Apparently the female breast passes through a stage comparable to that described as the sub-areolar node in boys, but from 3 to 5 years earlier. The youngest of the fourteen German girls in whom Zappert³⁶ observed the "acute painful swelling of the breast of older children" was 8 years old; his largest group of children with this condition were 11 years old. This agrees with the finding of Pryor³⁷ that the stage of the breast-bud was found most frequently in the age-groups from 11.5 to 12.4 years. The subsequent development of the female breast is summarized in a table by Pryor, and the data can be checked against the illustrations in the book by Gläsmér and Amersbach.³⁸ The development of the breast begins before the appearance of pubic hair, and is well advanced by the time of the menarche.

Pubic Hair. — The tabulations of Pryor include the result of classifying 74 girls at the menarche as to the stage of development of pubic hair. The largest group, 48 girls, were at that time at stage C, characterized by "terminals not over 25 mm. in length, sparse, fully pigmented, and wavy." Another table, showing the relation of pubic hair to age, indicates that a definite growth precedes the menarche by roughly a year. The axillary hair appears later than the pubic as it does in boys.

Height and Weight Growth in Girls. — Pryor and her collaborators made a serial study of the adolescent growth spurt in 100 girls. Examinations were made at half-year intervals over a period of four years. Gain in height preceded gain in weight, and was quite evenly distributed over a period of 18 months. Pubescent girls averaged a height increase of 10.64 cm. in eighteen months compared with a 9.38 increase for non-pubescent girls of the same age. The rate of height-gain for pubescent girls during the last six months before the appearance of the menses was 26 per cent faster than that for non-pubescent girls during the same period of time.

Pubescent girls were consistently taller and broader than non-pubescent girls of similar ages in a series of 422 cases.

The same investigators also studied the weight-growth of their subjects. They found an acceleration which appeared to be specifically stimulated by the approach of catamenia. During the six months just preceding the menarche, 40 girls made "an average gain of 4.2 kg. (9.2 pounds), or almost twice as much as 40 other girls of the same ages who were non-pubescent and averaged 2.47 kg. (5.4 pounds) during the same period of time." The result of this acceleration of growth is that, like boys, post-pubescent girls for a time surpass the pre-pubescent girls of their own age-group in height and weight.

Mental Attitude in Girls. — A remarkable illustration of the usefulness of statistical method is the discovery of Stone and Barker³⁹ that they could express quantitatively so intangible a thing as the change in outlook that accompanies the menarche in girls. They used three standard tests to measure the intelligence, interest-attitudes, and developmental age of 175 post-menarcheal girls. The results were compared with others obtained by measuring a similar, homogenous group of 175 premenarcheal girls, paired for chronological age with the former group. By all three tests the post-menarcheal group was found to be significantly ahead.

Reproductive Phenomena. — Engle and Shelynsnyak²⁵ studied the first menstrual cycles of 100 girls whose medical histories and physical findings were normal. This group of girls had experienced from 20 to 69 cycles, a total of 3,140. The extreme range for length of cycle was from 7 to 256 days, with a mode at 28 days and an average of 33.9 days. Thirty-two per cent of these cycles departed more than 14 days from the average for any given girl, and thirty-two per cent of the cycles differed by more than 11 days from the average of the group as a whole. It is important to note that the average (roughly 34 days) differs from the most frequent figure (28 days) by as much as 6 days. The extent of normal variations revealed by this study deserves wider appreciation; it has also been emphasized by Arcy.⁴⁰

Mills and Ogle³³ have assembled the results of observations in man as well as of experiments

with monkeys and mice which indicate that the menarche is not the same as the time when ability to conceive appears. The monkeys studied by Hartman⁴¹ began to menstruate when their body weights reached about 3350 grams, but did not ovulate or conceive until they reached about 5000 grams. The mice studied by Mills and Ogle under controlled conditions of artificial climate showed a lag of about 30 days between first estrus and first conception, the duration of the lag being affected by living conditions. In the human female the corresponding lag is of the order of 5 years.

CONCLUSION

Our knowledge of the simple numerical facts about puberty in both sexes is still incomplete. The methods of statistical analysis in the hands of experienced workers promise to help much in giving us the data on which to base the diagnosis and treatment of abnormalities.

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GRAPHIC CHANGES OF CORONARY OCCLUSION

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Before the characteristic electrocardiographic findings of myocardial infarction were so well understood the clinical diagnosis of coronary occlusion was difficult. With the aid of recent knowledge the diagnosis can now be established with a high degree of accuracy in the majority of cases.

The importance of the typical S-T interval displacement, coronary T wave and the other more outstanding abnormalities diagnostic of occlusion are widely recognized. Additional graphic alterations, although not typical, occur sufficiently frequent following infarction to be of definite assistance in diagnosis. Particularly is this true when the more typical changes are minor or absent. The diagnostic importance of these minor changes is not sufficiently recognized. Over-enthusiastic pre-occupation with chest leads during recent years has directed attention away from the three standard leads.¹⁻⁹ Whereas chest leads occupy an important and indispensable place in the study of coronary occlusion curves, many significant changes occur in limb leads and these will be found to be of great assistance in diagnosis if they are only sought and detected.¹⁰⁻¹³

The characteristic graphic changes following an acute coronary occlusion have been summarized¹⁴ as follows:

1. Elevation or depression of the S-T interval^{15, 16} with reciprocal change in Leads I and III, which represent the T₁ and T₃ type¹⁷ of curve so useful for localization^{18, 19} of the myocardial infarct.
2. Cove-shaped coronary T wave.²⁰
3. Large Q₃.²¹
4. Prominent Q₁ and Q₃.^{22, 23}
5. Abnormal chest leads.¹
6. Large P wave.²⁴
7. Low voltage.^{25, 28}
8. Reciprocal T wave.²⁶
9. The sudden onset of ventricular tachycardia, auricular fibrillation or flutter, or of auriculoventricular or intraventricular block, in a patient without previous cardiac symptoms, especially if known to have had a recently normal electrocardiogram.

10. Typical progressive changes of myocardial infarction in serial curves.^{8, 16, 17, 27-30}

Analysis of large groups of coronary occlusion curves to determine the frequency of occurrence of these minor changes associated with myocardial infarction should be of great value.⁸ Such information is essential if the importance of these changes in the diagnosis of coronary occlusion is to be properly evaluated. With this in mind an analysis was made of our experience with this condition. It is important to recognize that the approach was electrocardiographic not clinical or from the viewpoint of necropsy.

During a five year period, 4,351 graphs were recorded on 3,879 private patients referred for electrocardiographic examination. From this group 668 records, representing 350 coronary occlusions in 345 patients, were selected for study. Graphic abnormalities indicative of recent infarction was the sole basis for selection. Only cases with definite electrocardiographic evidence of occlusion in the initial record or in subsequent curves were included. All others, regardless of the clinical picture, were rejected. Our observations are reported; related references to the literature being added.

Of the 345 patients, 274 were male and 71 female.^{8, 31-33} Of the 350 cases of occlusion 98 were ambulatory, 104 were in hospitals and 148 were at home at the time of the initial record. Many of the electrocardiograms were obtained within a few hours of the clinical attack. Some, particularly in the ambulatory group, were obtained later. In 168 instances, two or more records, at variable intervals, were obtained. Age incidence, distributed according to decades, reveals that the greatest number of attacks occurred during the fifth decade.^{8, 31, 32, 34} There was a predominance of anterior infarctions in this series.^{8, 12, 34, 35}

Mortality was higher during the first several days following an attack than later.³⁶ If delayed, it was commonly associated with a subsequent attack.³⁷ Combined infarction was rare in this series.^{8, 31, 37} In reported necropsy series its incidence is high^{8, 34}; indicating that multiple infarction has a more serious prognosis than has a single infarct. A correct graphic diagnosis of multiple infarction may, at times, be difficult.

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Occasionally, it may be difficult to establish the occurrence of a subsequent infarction by electrocardiograms alone. Usually, however, alterations resulting from the more recent occlusion dominate the picture. A diagnosis of combined or subsequent infarction, in this series, was made only when both occlusions could be dependably demonstrated by serial curves.

All graphs were made with the patient in the recumbent position.^{38, 39, 40} The three limb leads were first recorded. Chest leads were obtained by transferring the left arm electrode to the left fifth interspace in the midclavicular line; lead wire connections remaining undisturbed. Lead I and Lead III on the control board were selected in succession; a right arm to precordium and a standard Lead V chest lead thereby being recorded.⁴⁰ These are identical with a CR₄ and an inverted CF₄ according to the new terminology⁴¹.

Of the 350 coronary occlusions, 182 patients had only one record; 100 had 2; 32 had 3; 14 had 4; 12 had 5; 3 had 6; 2 had 7; 3 had 8 and 2 had 9 records at varying intervals following the accident. Of the 350 graphs diagnostic of occlusion 186 were of the T₁ type, 26 with and 160 without S-T interval displacement; 112 were of the Q₃T₃ type, 38 with and 74 without S-T interval displacement; 22 were of the Q₁T₁ type, 7 with and 15 without S-T interval displacement; 14 were of the T₃ type, 2 with and 12 without S-T interval displacement, while 6 represented lateral infarctions⁴² and 10 could not be classified.

Electrocardiograms with and without S-T interval displacement represent respectively the early and late stage of the typical T wave changes which characteristically follow myocardial infarction. The large Q₃ of Pardee is represented by the Q₃T₃ group; the prominent Q₁ being likewise represented by the Q₁T₁ group of this series. For the production of S-T interval displacement, some⁴³ believe that a fall in blood pressure in addition to the coronary occlusion, is necessary, while others^{12, 43-46} feel that such a fall in pressure is not essential. In five cases with normal or temporarily elevated blood pressure S-T interval displacement occurred in limb or chest leads or in both. This transitory elevation of blood pressure which may occur during the early painful stage of infarc-

tion may, by suggesting angina, cause one to over-look the possible presence of a recent or developing coronary occlusion. With more careful study of the initial stage of infarction, a much larger incidence of such changes will undoubtedly be found.

Chest leads were normal following occlusion in 128 cases; 29 of T₁, 84 of Q₃T₃, 3 of Q₁T₁, 4 of T₃ type, while 4 were lateral infarctions, and 8 were unclassified. They were abnormal in 222 instances. Of these, 193 simply magnified diagnostic changes already present in the limb leads. Of the latter group, 184 were of no diagnostic assistance. In 29 instances chest leads were abnormal without diagnostic changes being present in the corresponding limb leads, and hence were of diagnostic assistance. In 9 instances, in which chest leads magnified limb lead changes, they were helpful, since the limb lead changes were not sufficiently marked to be dependably diagnostic. For the diagnosis of coronary occlusion, chest leads were essential in 19, helpful in 19 and of no assistance in 312 instances. An absent initial positive ventricular deflection⁴⁷ occurred in 3 of the 5 instances of old occlusion as the only remaining evidence of myocardial infarction. A huge T wave⁴⁸ of reversed polarity occurred twice in the chest leads of a T₁ curve without S-T interval displacement, and not at all in a Q₃T₃ curve. A large T wave of normal polarity occurred 9 times in Q₃T₃ curves, 2 with and 7 without S-T interval displacement; such a T wave occurred once in a Q₁T₁ curve without S-T interval displacement, and not at all in a T₁ or T₃ type of curve. A T wave of reversed polarity, but of normal size⁴⁹ occurred, as an isolated chest lead finding, 10 times in T₁ curves, 5 times in Q₃T₃ curves, twice in Q₁T₁ curves, twice in T₃ curves and once in a curve of lateral infarction.

A large P₂²⁴ occurred in 112 T₁ curves, 56 Q₃T₃ curves, 13 Q₁T₁ curves, 6 T₃ curves and in 4 curves of lateral infarction and 6 unclassified curves; a total of 197 times in 350 instances of coronary occlusion.

Low voltage²⁵ occurred in 45 T₁ curves, 9 Q₃T₃ curves, 7 Q₁T₁ curves, 2 T₃ and in 2 lateral and 2 unclassified curves; a total of 67 times in 350 coronary occlusion curves.

A reciprocal coronary T wave²⁶ occurred in

55 T_1 curves, 40 Q_3T_3 curves, 10 Q_1T_1 curves, 3 T_3 curves and 1 unclassified curve; a total of 109 times in 350 instances of occlusion. That the occurrence of a reciprocal T wave is not limited to T_1 occlusion curves is evidenced by the fact that such a wave appeared in 40 Q_3T_3 curves and in 3 T_3 curves. Basis for this alteration is the long since recognized reciprocal relationship of Leads I and III.

Ventricular tachycardia occurred in 7 instances, 5 times in T_1 curves and twice in Q_3T_3 curves. Auricular fibrillation occurred in 7 instances, 6 times in T_1 curves and once in a Q_3T_3 curve. Auricular flutter, of 2:1 type, occurred twice, once in a T_1 curve and once in a T_3 curve. Nodal tachycardia occurred once in a Q_3T_3 curve. Auricular tachycardia was not observed. Ventricular extrasystoles occurred in 11 T_1 curves, 7 Q_3T_3 curves and once in a Q_1T_1 curve. Nodal extrasystoles occurred in 3 T_1 curves, 3 Q_3T_3 curves and in 2 Q_1T_1 curves. Auricular extrasystoles occurred in 6 T_1 curves and 3 Q_3T_3 curves. A prolonged P-R interval was noted in 8 T_1 curves, 1 Q_3T_3 curve, 4 Q_1T_1 curves, 2 curves of lateral infarction and in 1 unclassified curve. Dropped beats occurred twice, once in a T_1 and once in a Q_3T_3 curve. Intraventricular block occurred in 7 T_1 curves, 2 Q_3T_3 curves, 4 Q_1T_1 curves, 1 T_3 curve, 1 curve of lateral infarction and once in an unclassified curve; a total of 16 times in 350 cases of coronary occlusion. Bundle branch block occurred thrice in T_1 curves. Complete heart block occurred only once in a Q_3T_3 curve. This data is summarized elsewhere in tabular form.

Serial curves were necessary in 18 instances to definitely establish the diagnosis of coronary occlusion.

DISCUSSION

For the recording of an electrocardiogram the recumbent position should be routinely employed.^{35, 39, 40} Unfortunately, this is not yet universally recognized.

In the past, some preferred a right arm to precordium,^{11, 50-52} others a precordium to left leg chest lead.^{18, 53} The original Leads IV and V of Wolfersht, identical in appearance, were most widely used. In most of the outstanding contributions one or the other of these leads have been employed. The technique for recording Lead V almost became the accepted chest lead procedure.

In the midst of this investigation the recommendations of the American Heart Association for

the standardization of precordial leads appeared.⁴¹ Some now prefer IVR^{54, 55}, others IVF^{41, 56}, while some record CF₃, CF₄ and CF₅⁵⁷, others CF₂ and CF₄⁵⁸, while still others prefer to record a IVR or IVF with CR₃ or CF₂⁵²; there being no agreement as to the best location of proximal or distal electrode or the manner in which the electrodes should be connected to the galvanometer. That the polarity of chest leads be reversed has been suggested.^{1, 41} The matter is of academic rather than clinical interest. The method has not been universally accepted.

The position of the chest electrode is of considerable importance. A small shift thereof may considerably alter the record. As previously emphasized,^{14, 40} "we have not found it satisfactory to place the electrode over the apex of the heart as is done in some clinics."⁵

It is clear that considerable confusion still exists concerning the proper method of recording chest leads.⁹ Lack of a simple practical, uniform and precise technique is responsible. Hence, it was not considered wise, in the midst of this survey, to change our chest lead technique.

A simplified technique,⁴⁰ modified from Roth,¹¹ as described above, was routinely employed. The advantages of this method of recording chest leads are readily appreciated. It is simple and dependable. For convenience, the left arm electrode was applied to the chest; no advantage in the use of a special chest electrode⁴¹ having been observed. This eliminates shifting of lead wire connections. Two precordial leads are as readily obtained thereby as is a single lead by any other technique. No other method for the recording of chest leads is supported by such a wealth of experience or has afforded more information in routine clinical practice. The method, we believe, if universally adopted, would simplify the use of precordial leads and eliminate existing confusion which has resulted from a lack of uniformity and precision in technique and nomenclature; the leads here described being referred to simply as Leads IV and V.

It is well recognized that the electrocardiogram may be so distorted by other factors and conditions that it may be difficult to differentiate the resultant alterations from changes due to myocardial infarction.^{8, 59}

An established arterial hypertension may modify the form of the electrocardiogram.^{14, 60, 61} These characteristic alterations frequently simulate and have often been mistaken for those resulting from coronary occlusion with myocardial infarction. Especially is this true when only a single record is available for diagnosis. Again, the development of the typical progressive changes of myocardial infarction is frequently delayed in the curve of arterial hypertension. However, if serial curves, recorded at properly timed intervals, are available, the diagnosis can be established with a considerable degree of certainty in most instances. The curve of arterial hypertension,

once established, persists with little change in contour. The progressive and characteristic nature of the changes which follow infarction are readily recognized in most cases. Following an occlusion, when the previous blood pressure level is unknown, a normal reading may mislead, unless a further drop in pressure is noted. At times, the electrocardiogram may furnish the only evidence of pre-existing hypertension.

Intraventricular block is, at times, a disturbing element in the graphic diagnosis of occlusion.^{8, 62-64} It may mask features of the electrocardiogram commonly associated with infarction. Nevertheless, changes often occur which indicate an occlusion, especially if serial curves are obtained. Progressive changes or the occurrence of a transitory block are suggestive.⁸ It is well to remember that prolongation of auriculo-ventricular conduction, and particularly intraventricular conduction, as well as complete and incomplete bundle branch block, are frequently associated with coronary sclerosis and constitute strong presumptive evidence of coronary disease.

Digitalis may modify the form of the electrocardiogram.⁶⁵⁻⁶⁸ It requires about two weeks for digitalis effects to disappear. In only 9 cases was digitalis given. In most instances the quantity was too small to interfere with the other graphic changes. In 3 cases definite alterations resulted, but in no case did it cause confusion in diagnosis.

Pericardial involvement,⁶⁹⁻⁷³ pulmonary embolism,⁷⁴⁻⁷⁷ aortic aneurysm,⁷⁸⁻⁸⁰ trauma to chest,⁸ coronary insufficiency,⁸¹ angina and congestive failure may, likewise, cause confusion in diagnosis.

Limb lead changes alone,^{82, 83} in the majority of instances, were dependably diagnostic of myocardial infarction.

Disturbances of rhythm occasionally occurred. They were usually associated with anterior infarction. The incidence of ventricular tachycardia in this series minimizes the importance of routine prophylactic administration of quinidine sulphate.^{64, 85} It is wholly depressant in its effect on the myocardium. It is unquestionably the drug of choice when ventricular tachycardia occurs.

Left axis deviation occurred frequently and with all types of infarction. Rarely was it transitory. Right axis deviation occurred rarely, with anterior infarction, not at all with posterior infarction, and in no instance was it transitory. Slurring of the QRS complex was present in most instances; notching being much less frequent. These changes, however, were of little or no assistance in the diagnosis of coronary occlusion.

The classic picture of S-T interval displacement^{16, 16} presents: with anterior infarction, S-T₁ elevation and S-T₂ depression; with posterior infarction, S-T₁ depression and S-T₂ elevation. These typical alterations,¹⁷ in the vast majority of instances, localize the region involved, which in turn usually indicates the

coronary artery occluded.^{18, 86} As a result of these patterns the majority of coronary occlusion curves fall into two definite and distinct topographic groups which agree essentially with the specific muscle bundle method of localization.¹⁹

Displacement of the S-T interval, signifying the early stages of infarction, was absent in a high percentage of cases. While in some instances delay in obtaining the initial record may have been responsible, in most instances the interval between the attack and the initial record was short and still this early change of infarction had disappeared. The transitory nature of S-T interval displacement in limb leads, was more evident with lateral infarction. It was more common and marked with anterior than with posterior infarction; the reverse being true of S-T interval changes in chest leads. Deviation of the S-T interval, particularly in limb leads, was not always characteristic. This was more commonly noted with anterior than with posterior infarction. This variability has been ascribed⁸ to closure caused by sclerotic plaques with associated widespread coronary sclerosis and insufficiency. Graphic alterations of the type attributed to recent infarction, due to sudden (thrombotic) closure, followed closely the patterns described.

Typically, S-T interval displacement is opposite in direction to the T wave which subsequently develops as is the convexity of the curve forming the proximal limb of this coronary T wave. With recent anterior infarction this bowing of the S-T interval is upward in Lead I and downward in Lead III. With recent posterior infarction it is the reverse. This change appears early following infarction and quickly disappears. In most instances S-T interval displacement followed the classic picture. Exceptions usually presented changes attributed^{8, 86} to chronic impairment of the coronary circulation. Occasionally, the S-T interval was depressed in all three leads. Rarely, it was elevated in all leads.

The peaked coronary T wave with rounded shoulders and symmetrical limbs which follows the typical, oppositely directed, S-T interval displacement, occurred in the majority of instances. With recent anterior infarction, a negative T₁; with recent posterior infarction, a negative T₂ is to be expected. A T₂ of similar contour may occur with either type but is more frequently of diagnostic assistance with posterior than with anterior infarction. A negative T₁, simulating in contour a typical coronary T wave and arising from an isoelectric level, usually indicates an old anterior infarction. If the T wave originates from a depressed S-T interval it does not dependably indicate occlusion; being due, usually, to chronic coronary disease, involving the left ventricle with or without an associated arterial hypertension. T waves, described as upright, positive or reciprocal coronary T waves,²⁰ were less frequently observed. In certain instances they were helpful in diagnosis. Coronary T waves in all limb leads occurred. Positive T waves in all leads were likewise noted, early and late, fol-

lowing infarction, but in no sense were these of the reciprocal type elsewhere described.²⁰ A large Q_s , of the type described elsewhere,²¹ is commonly associated with the coronary T_s of posterior infarction. It may indicate coronary involvement with or without occlusion. It is found with a variety of myocardial changes other than infarction. It may be transitory. It may occur with a perfectly normal heart. A large Q_s with inverted T_s does not indicate an old infarction, as docs at times, a similarly associated Q wave in Lead I. An associated negative T_2 of typical coronary contour does furnish dependable evidence of a previous occlusion. Occasionally, a small Q_i occurred with anterior infarctions of the type due to thrombotic closure. In another series it was not found with such T_i infarctions.⁸

Although, at times, a Q_i associated with infarction, persists much longer than does the S-T interval and T wave alterations, and hence assists in diagnosis, on the other hand, it is often no larger than is the small Q wave which occurs fairly frequently in Lead I of the normal electrocardiogram; its diagnostic importance thereby being greatly impaired. It is most helpful when the chief deflections in Lead I are small.¹²

"The diagnostic value of Q_s for the localization of infarction is thus practically nil and it is doubtful whether Q_i is of greater value in this regard."⁸ Occurrence of S_i , S_s or combinations of these with Q_i and Q_s were of no particular diagnostic significance.

Chest leads, at times, assist in determining the occurrence, the location and/or the duration of myocardial infarction. Some have described alterations of the QRS complex, others have emphasized the significance of S-T interval displacement, while still others have stressed the importance of T wave changes. In precordial leads, R_4 or Q_s are best described as the positive initial deflection. Absence of this wave has been considered characteristic of recent anterior infarction.⁴⁷ This was found to be true in most instances. In several cases a small and in a few instances, a large R_4 or Q_s , was present with anterior infarction. Persistence of this wave with anterior infarction has likewise been attributed to closure caused by sclerotic plaques.⁸ An absent R_i or Q_s is a significant finding. It is frequently indicative of recent anterior infarction. It may be the only remaining graphic evidence of an old anterior infarction. It is the most dependable late sign thereof; being suggestive but not absolutely diagnostic. Its presence, however, does not eliminate such a possibility. An absent R_4 or Q_s occurs with coronary sclerosis without infarction and may occur even in the absence of coronary disease.

Too little attention is paid, in the literature, to the distinction between an old healed infarct, of little practical importance, and a recent or healing infarct requiring special medical attention. Differentiation,

for the most part, is possible only by means of serial curves.

Normally, the QRS complex is diphasic in chest leads. With recent anterior infarctions a negative monophasic QRS complex occurred in most instances. In several instances, apparently sclerotic closures, this was not true. A negative monophasic QRS complex may occur without infarction; the result of myocardial involvement due to extensive coronary disease. With recent posterior infarction, the QRS complex retains its normal diphasic appearance in most instances. Rarely was a negative monophasic QRS complex observed. A positive monophasic QRS complex occurs fairly frequently in otherwise normal records and does not, per se, indicate infarction.

Deviations of the S-T interval were more characteristic than QRS complex changes. Elevation of $S-T_i$ with depression of $S-T_s$ occurred in most instances of recent anterior infarction. Persistence of S-T interval displacement in chest leads with anterior infarction was occasionally of assistance in directing attention to the recent occurrence of an occlusion and in this way was of assistance in diagnosis. Depression of $S-T_i$ with elevation of $S-T_s$ occurs with recent posterior infarction. When displaced $S-T_{4,s}$ tends to become horizontal; its termination being more clearly differentiated than normally. Such a horizontal $S-T_{4,s}$ may occur and without deviation suggest a recent posterior infarction. With posterior infarction, however, the $S-T_{4,s}$ displacement is so transitory and its return to the isoelectric level is so rapid that, unless the graph is recorded very soon after the occurrence of an occlusion, the change is missed; the chest leads having returned to normal no evidence of infarction remains in these leads.

T wave changes were characteristic in most instances. An inverted T_4 or upright T_s was present in most of the cases of recent anterior infarction. A normal $T_{4,s}$ was found most often in cases of recent posterior infarction. A T wave of reversed polarity, as an isolated finding in chest leads,⁴⁹ while not diagnostic of occlusion, is a highly significant finding. Whereas it commonly occurs in the electrocardiogram of children with normal hearts,⁸⁷ it is uncommonly seen in the adult electrocardiogram in the absence of coronary disease. The findings should be considered a definite indication for further graphic study. Reversal of the direction of $T_{4,s}$, while fairly common with anterior infarction, is considered rare with posterior infarction; two cases⁵¹ being cited¹² to indicate that it can occur. A tall T_4 or deeply inverted T_s was found most often in cases of recent posterior infarction. Whereas such an abnormally large T wave⁴⁸ of normal polarity occurs in otherwise normal curves from patients without evidence of heart disease, nevertheless, it occurs sufficiently frequent following a coronary occlusion to warrant serious consideration; the abnormality demanding further graphic observation. A huge T wave of reversed polarity,

associated with anterior infarction, while less frequent, is of greater significance. These waves may be transitory or persist for months.

Regarding the relative value of standard leads and chest leads in the diagnosis of recent infarction,⁸⁸ we found that in 312 of 350 coronary occlusion curves the diagnosis of myocardial infarction was dependably indicated by alterations in the limb leads; chest leads being of no diagnostic assistance in these cases. In 38 instances chest leads were of assistance in diagnosis; helpful in 19 and essential in 19 cases. Chest leads were abnormal in 222 instances. In 129 of these cases they simply magnified diagnostic changes already present in the three standard leads, and in 184 instances were of no help in diagnosis. Chest leads were normal in 128 instances, these being, for the most part, posterior infarctions.

Serial curves, as previously emphasized, are often necessary in the diagnosis of recent infarction. They are always helpful in management. The progressive changes of serial curves, the result of infarct organization, aid in estimating the progress of healing. As healing progresses the graph returns toward normal. If the healing process stops short of complete recovery the electrocardiogram may fail to return completely to its normal or former contour. They are of assistance in determining the amount of residual coronary insufficiency.

A large P₂²⁴ appeared sufficiently frequent to be of definite assistance in the diagnosis of myocardial infarction. Changing P wave contour, likewise, may be of diagnostic assistance. An increase in amplitude of the auricular sound in stethograms has been observed following acute coronary closure.⁸⁹

Low voltage commonly develops following occlusion and is frequently of definite diagnostic assistance. Such a marked and sudden decrease in amplitude of QRS in all limb leads is of unfavorable²⁸ but not necessarily of immediately serious prognostic significance. The low voltage curve of myocardial infarction may persist indefinitely after more or less complete clinical recovery. It seldom returns to normal. Low voltage apparently bears no relationship to low amplitude of the QRS complex in chest leads. In the majority of cases exhibiting a low voltage curve, the precordial QRS complex was of normal amplitude. Low amplitude of the QRS complex in chest leads most commonly was the result of improper placement of the precordial electrode. Usually, when this electrode was placed beyond the left heart border the resulting chest lead was dwarfed; the right arm to precordium lead appearing as a modified Lead I, the precordium to left leg lead appearing as a modified Lead III. In such instances, with proper technique, a chest lead with QRS complexes of wide amplitude was obtained. A low voltage electrocardiogram of a man in his forties, without previous cardiac complaint, suggests infarction, even in the absence of pain or other manifestation thereof, and

should be so considered until proven otherwise. A reciprocal coronary T wave²⁶ as an associated change, aids in the diagnosis of coronary occlusion, as does the low voltage curve and large P₂ wave.

SUMMARY

The incidence of myocardial infarction was greatest during the fifth decade of life; its occurrence being greater in men than in women.

The graphic diagnosis of coronary occlusion can be established with a high degree of accuracy in most instances.

The majority of occlusion curves readily fall into the well established classic groups; localization of the area of infarction by means of these typical patterns being accurately determined in a large percentage of cases.

Aside from the characteristic graphic alterations of occlusion, associated, less typical, changes occur with sufficient frequency to be of definite assistance in diagnosis.

Proper evaluation of a large P₂, reciprocal coronary T wave; the sudden occurrence of a low voltage curve, of ventricular tachycardia, auricular fibrillation or flutter, a conduction disturbance, T wave reversal, or a huge T wave in chest leads, with or without reversal of polarity, is often helpful. It frequently aids by preventing an atypical infarction from being overlooked; the more typical changes of occlusion being minor or absent. Chest leads, although indispensable, are essential for diagnosis in only a relatively small number of cases. Their limited usefulness emphasizes the importance of careful evaluation of limb lead changes whenever a coronary occlusion is suspected.

The diagnostic importance of serial curves is emphasized. The more widespread recognition of their value in the study of myocardial involvement represents the most valuable recent advance in the clinical application of electrocardiography.

SIGNIFICANT DATA

Graphs Recorded	4,351	Males	274
Patients Examined	3,879	Females	71
Graphs Selected	668	Total	345
Occlusion Curves	350	Ambulatory	98
Initial Occlusion	345	Hospital	104
Recurrent Occlusion	5	Home	148

Table 2

Incidence by Decades	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
	0	1	6	78	137	90	34	4	0
Records per Patient	1	2	3	4	5	6	7	8	9
	182	100	32	14	12	3	2	3	2

Table 3

Occlusion	Curves	ST	Displacement	Seasonal	Incidence
Type	Total	With	Without	Coronary	of Occlusion
T ₁	186	26	160	Oct. 33	Apr. 27
Q ₃ T ₃	112	38	74	Nov. 24	May 22
Q ₁ T ₁	22	7	15	Dec. 32	June 26
T ₃	14	2	12	Jan. 44	July 27
Lateral	6	6	0	Feb. 32	Aug. 23
Unclass.	10	4	6	Mar. 43	Sept. 17
Total	350	83	267	208	142

CHEST LEADS

Type of Curve	Total	T ₁	Q ₃ T ₃	Q ₁ T ₁	T ₃	Lat.	Uncl.
Normal	128	25	84	3	4	4	8
Abnormal	222	161	28	19	10	2	2
Magnified In	193 cases, but for diagnosis, were of						
No Help In	184 instances.						
Helpful In	29 without typical limb lead change.						
In	9 magnified & also aided diagnosis.						
Total Cases	38 chest leads were of assistance.						
Essential In	19 patients, they were likewise						
Helpful In	19 instances, whereas, they gave,						
In	312 cases, no diagnostic assistance.						

ASSOCIATED GRAPHIC ABNORMALITIES

E.K.G. Change	Total	T ₁	Q ₃ T ₃	Q ₁ T ₁	T ₃	Lat.	Unclas.
L. A. D.	255	130	92	14	9	4	6
R. A. D.	10	7	0	3	0	0	0
Large P ₂	197	112	56	13	6	4	6
Low Voltage	67	45	9	7	2	2	2
Reciprocal T	109	55	40	10	3	0	1
Auric. XS	9	6	3	0	0	0	0
A-V Nodal XS	8	3	3	2	0	0	0
Vent. XS	19	11	7	1	0	0	0
Auric. Fib.	7	6	1	0	0	0	0
Auric. Flutter	2	1	0	0	1	0	0
Auric. Tach.	0	0	0	0	0	0	0
Nodal Tach.	1	0	1	0	0	0	0
Vent. Tach.	7	5	2	0	0	0	0
Prolonged P-R	16	8	1	4	0	2	1
Dropped Beats	2	1	1	0	0	0	0
Intrav. Block	16	8	2	4	1	1	1
B. B. Block	3	3	0	0	0	0	0
Comp. Block	1	0	1	0	0	0	0



Fig. 1. Routine technique for recording limb leads,



Fig. 2. Simplified technique for recording chest leads.

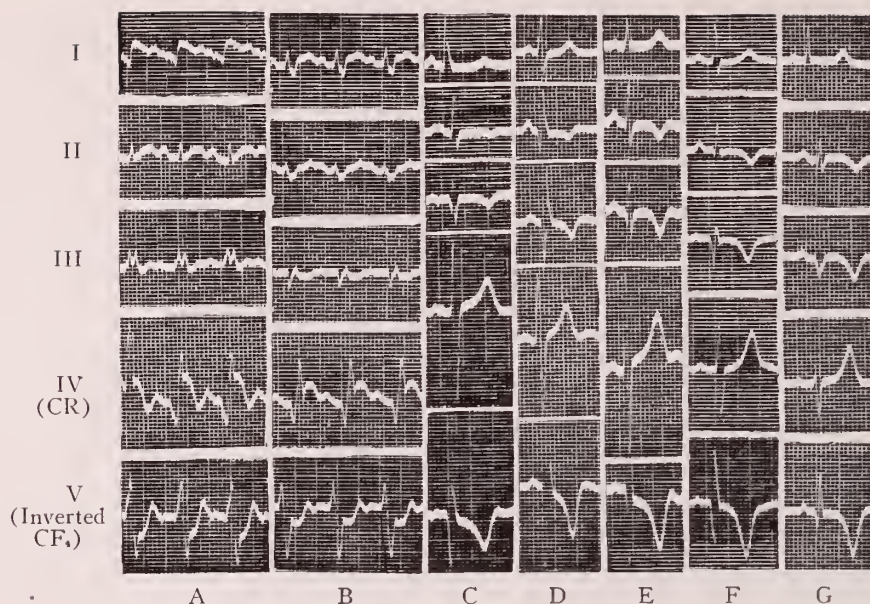


Fig. 3. (A and B) Early curves of anterior (apical) infarction. (C, D, E, F and G) Typical Q_sT_s curves of posterior infarction.

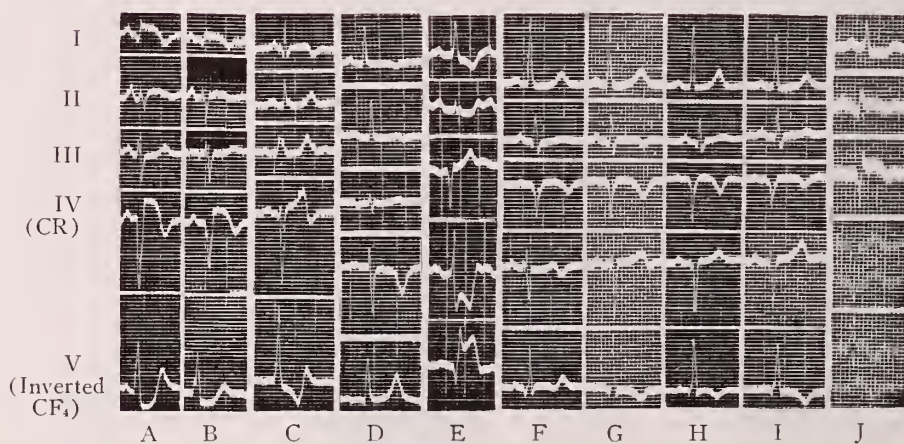


Fig. 4. (A, B and C) Typical early curves of anterior infarction. (D) Late curve of anterior infarction. (E) Lateral infarction curve. (F, G, H and I) Serial curves 1, 10, 30 and 71 days following posterior (basal) infarction. Polarity of $T_{a,s}$ is reversed in the initial record. (J) Typical *early* Q_sT_s curve 21 days after attack and 12 hours before death. Although 60-cycle interference, due to open wires in an old home, could not be eliminated, the graph is dependable for diagnosis.

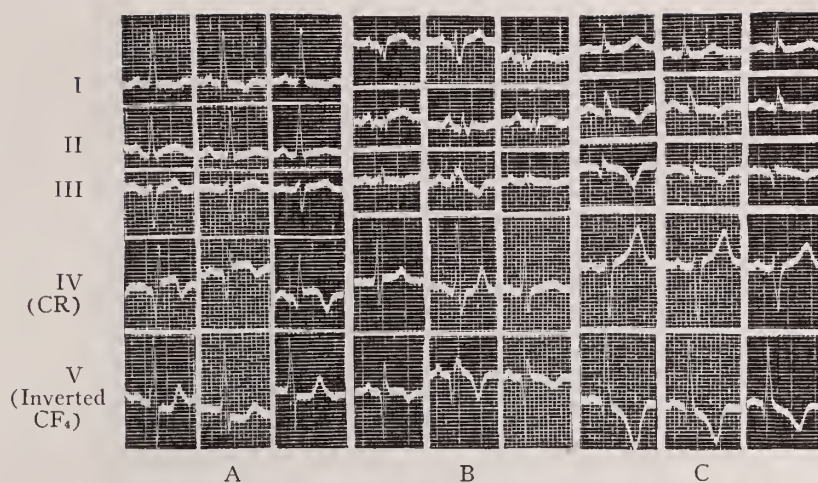


Fig. 5. Serial curves: (A and B) of anterior infarction, (C) of posterior infarction.

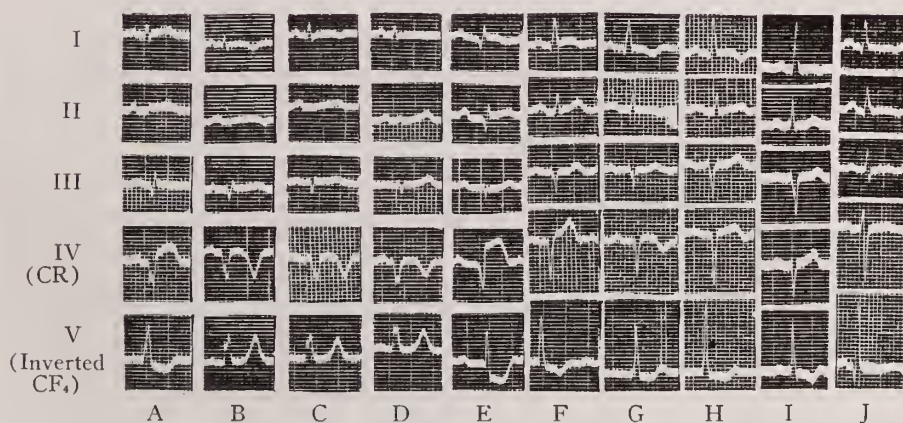


Fig. 6. (A) 12 hours (B) 35 days (C) 55 days and (D) 91 days after an anterior infarction. In active practice 5 years later. (E) 6 hours after a T₁ infarction and 2 hours before death. (F, G, H and I) curves 1, 28 and 55 days and 4 years after an anterior infarction. (J) Persistent R_s and Q_s in T₁ curve.

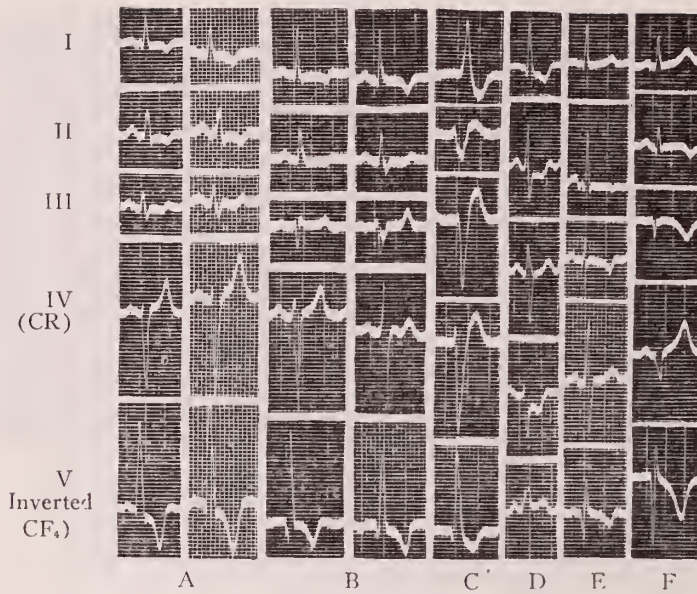


Fig. 7. (A) Recorded 1 and 22 days after infarction. $T_{1,2}$ contour sufficient for diagnosis. (B) T_1 contour of the initial record is suggestive and $T_{1,3}$, 2 weeks later, is of coronary contour. No diagnostic change in chest lead; R_4 and Q_5 persists. (C) Fundamentally the changes here are those of intraventricular block. The marked S-T interval displacement in all leads, per se, is not diagnostic of occlusion. Serial curves were essential. (D) Graphic changes commonly associated with lateral infarction. (E) Atypical curve of a posterior basal infarction. (F) Typical curve of a posterior basal infarction.

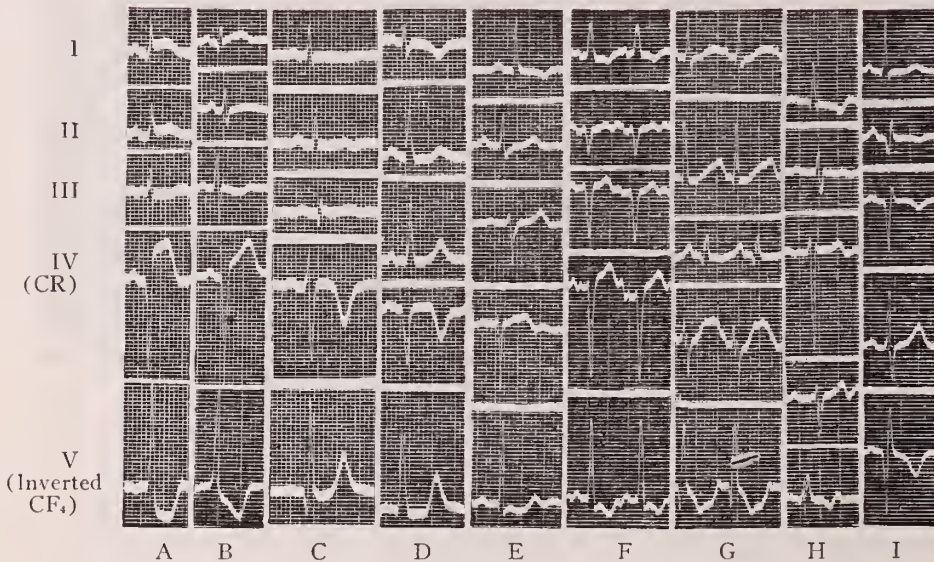


Fig. 8. (A and B) Early anterior infarction curves with typical alterations. (C) T_1 curve with persistence of R_4 and Q_5 . (D) Late curve of anterior infarction with typical changes in Leads I, IV and V. (E and F) Other T_1 curves. (G) Initial graph following anterior infarction. (H) Graph following a severe anginal attack in a patient with arterial hypertension as subsequently proven by serial curves. (I) Late Q_5T_5 curve.

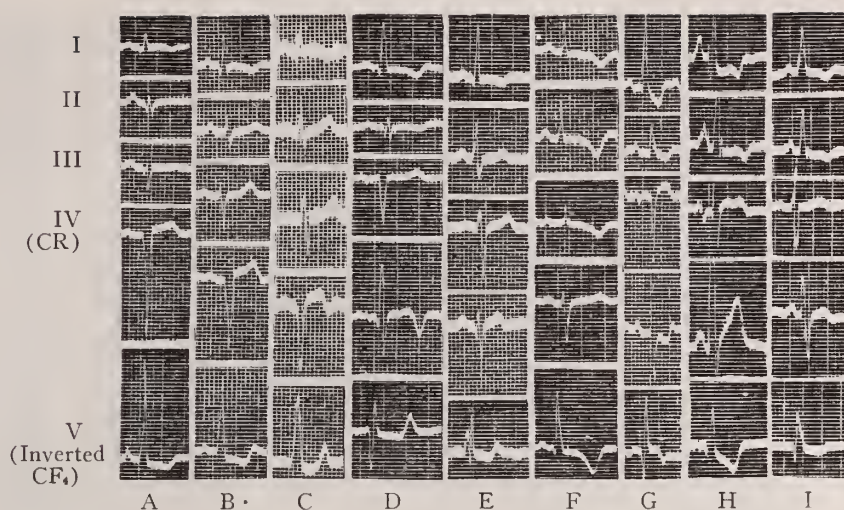


Fig. 9. (A) Chest leads simply magnify the diagnostic T_1 change. (B and C) Late T_1 curves with chest leads of typical contour. (D) Late curve of anterior infarction with persistent Q_s and $T_{4,s}$ of reversed polarity. (E) Late T_1 curves with absent R_4Q_3 and T_s of reversed polarity. (F) Combined infarction, female, age 27 years. Note chest lead contour. (G) Early Q_2T_3 curve. It simulates a curve of lateral infarction. (H) Unusual infarction curve with subsequent curve (I) $3\frac{1}{2}$ months later.

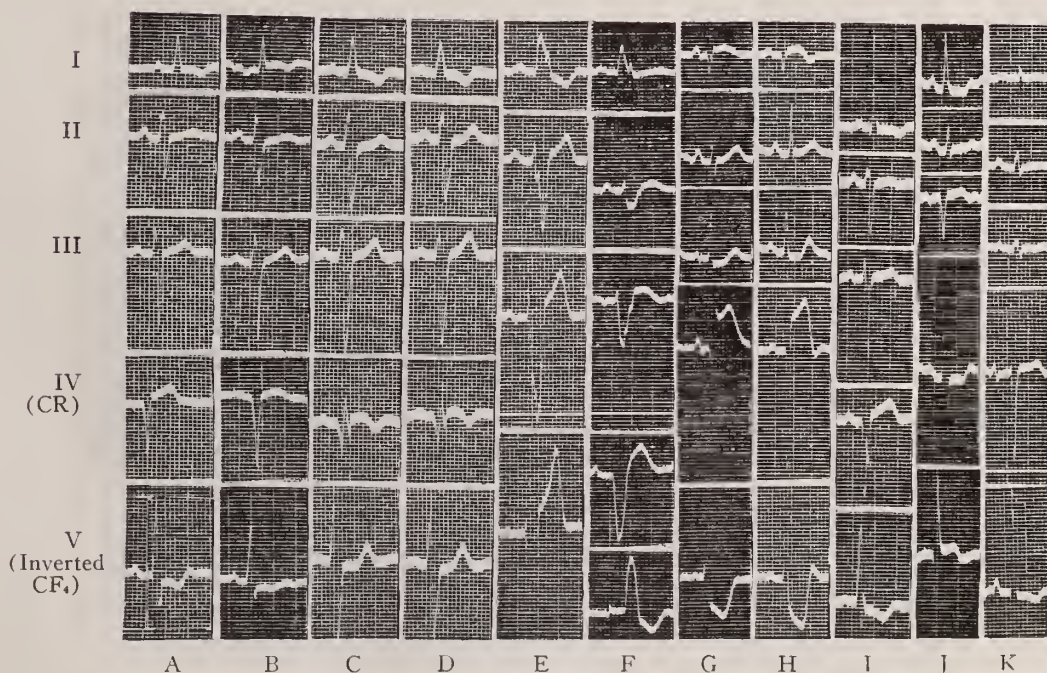


Fig. 10. (A) Curve 18 hours after an acute occlusion and 2 years after the original anterior infarction. (B) Graph 10 days after (A). (C) Recorded 1 day after a third attack and 21 months after (B), while (D) was recorded 23 days after (C). (E and F) recorded 1 and 14 days after an acute attack of chest pain. (G and H) Early T_1 occlusion curve. (I) Late T_1 occlusion curve. (J) Lateral infarction curve. (K) Low voltage curve in a man, age 41, without previous complaint. Chest leads suggest infarction as basis.

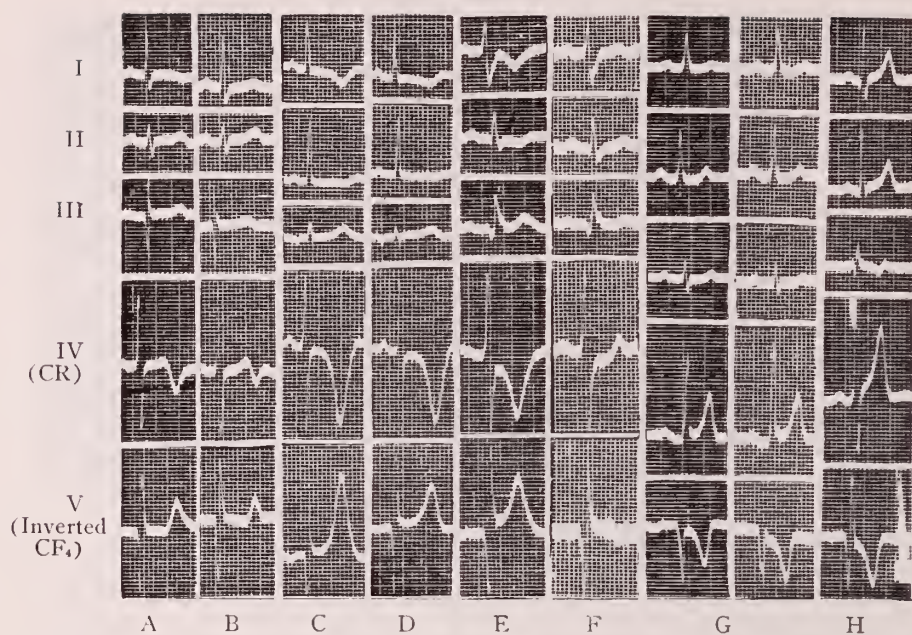


Fig. 11. (A) $T_{1,4,5}$ suggest occlusion; T_1 of (B) recorded 3 days later, was misleading. The patient died during a third and more severe attack the following day. (C and D) Anterior infarction curves with persistent R_4Q_5 and large T waves of reversed polarity. (E) Lateral infarction curve with large T wave of reversed polarity and subsequent curve (F) 35 days later. (G) Curve following anginal attack with subsequent curve, 2 weeks later, to eliminate possible infarction. (H) Large $T_{4,5}$ in curve of athlete without symptoms or findings of organic disease.

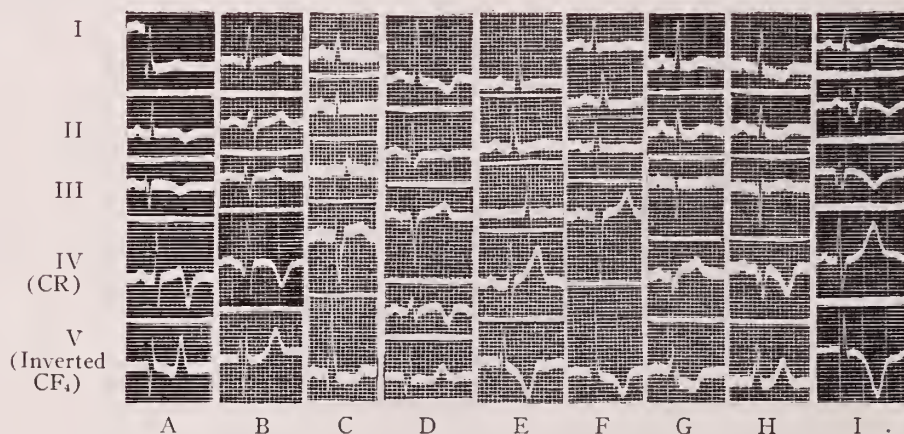


Fig. 12. (A) $T_{4,5}$ of reversed polarity in a Q_3T_3 curve. (B) Chest leads are at times essential for the early diagnosis of occlusion. (C and D) Persistent R_4Q_5 in T_1 infarction curves. Note $T_{4,5}$ contour. (E) Q_5 of 1 mm. and R_4 of 11.6 mm. with anterior infarction curve. (F) T_1 curve with persistent short R_4Q_5 . (G) Graph 1 day and (H) 15 days after infarction. (I) Q_3T_3 infarction curve. S-T, slightly depressed.

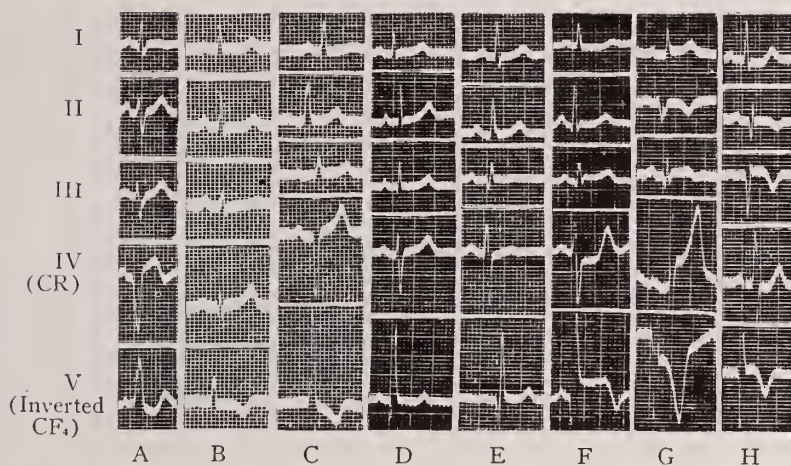


Fig. 13. (A). Diagnostic minor T_1 change is magnified in chest leads. (B and C) Absent R_4Q_5 in graphs recorded as part of routine examination in women, ages 46 and 35 years, without symptoms or findings of organic disease. (D and E) T_5 of reversed polarity in curves from adult males without symptoms or findings of disease. (F) $S-T_{1,3}$ displacement suggest posterior infarction. Chest leads suggest lateral infarction. (G) Large $T_{4,5}$ with atypical S-T interval displacement. (H) Q_3T_3 curve of posterior infarction.

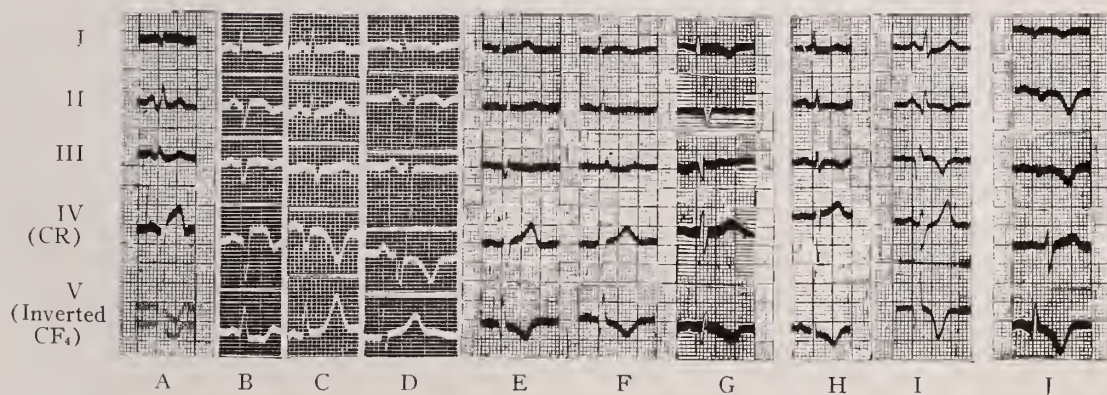


Fig. 14. (A) T_1 contour, in spite of 60-cycle interference, suggests occlusion; chest leads being confirmatory. (B) Probable anterior infarction; Q_3T_3 representing antecedent coronary disease. (C) Note that T_1 contour suggests beginning inversion. Chest leads essential for early diagnosis. (D) Limb leads diagnostic of infarction. Chest leads simply magnify. Note large P_2 in this and preceding curves. (E) Record before (F and G) after an anterior infarction. Chest leads remained unaltered. (H) T_3 curve of a recent posterior infarction. Chest leads suggest an old (healed) anterior infarct. (I) Early Q_3T_3 curve with S-T interval displacement in limb leads and large T wave in chest leads. (J) Probably a combined anterior and posterior infarction or a right coronary occlusion in the presence of a definitely compromised left coronary circulation.

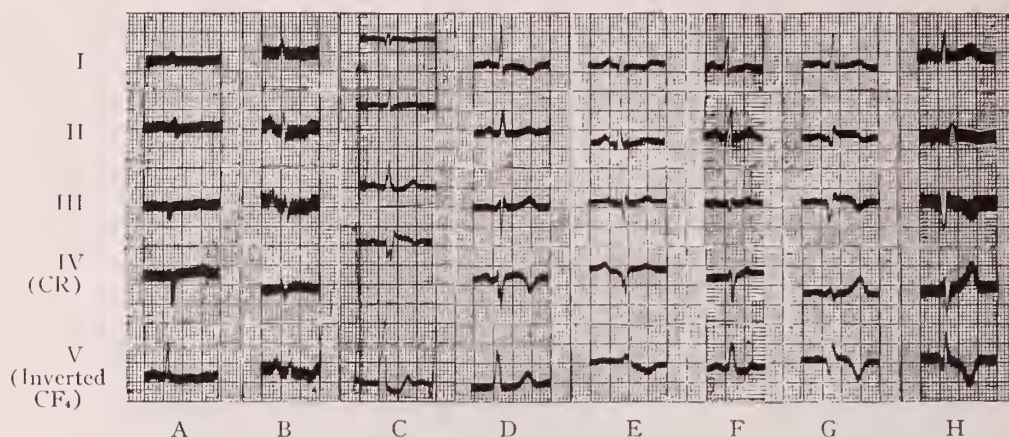


Fig. 15. (A and B) Low voltage and T_1 contour confirmed by chest leads. (C) The minor $T_{1,2}$ change is magnified in chest leads. (D and E) T_1 contour is not entirely typical but is supported by chest lead changes. (F) Absent Q_s and T_s of reversed polarity as initial changes suggesting occlusion. (G) Early Q_3T_3 infarction curve. $S-T_s$ is elevated. (H) Late Q_3T_3 infarction curve.

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PROBLEMS IN NUTRITION IN ALLERGY: REPORT OF A CASE OF OPTIC NEURITIS ON AN ALLERGIC BASIS

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Until recently the only types of ocular allergic manifestations described were those associated with seasonal hayfever, certain cases of vernal conjunctivitis and a few cases of perennial non-inflammatory conjunctivitis. Occasionally cataract in young individuals has been thought to be on an allergic basis, and sympathetic ophthalmia is considered by some authorities to be a manifestation of allergy. The retina and optic nerve are possible sites of reaction but only three case reports of this type have been found, one by Bedell¹ of a man who developed edema of the nerve head and retinal hemorrhage as part of a serum reaction following tetanus antitoxin; a

patient reported by Coca² who had simple edema of the left macular region each summer in conjunction with gastro-intestinal allergy and migraine; the third case was that of a physician, reported by Plumer,³ who had edema of nerve head and following the eradication of several suspicious foci of infection (dental and tonsillar) had a gradual and complete recovery, but several weeks later had a recurrence after the ingestion of peanuts. He was completely relieved for six years following the elimination of several foods.

It is possible that many patients who have had unexplained attacks of diplopia, permanent or temporary blindness, ophthalmic migraine or lesions of the retina may be hypersensitive. I wish to report a case of this type due to food allergy and to bring out some of the nutritional problems involved.

The patient, a Mother Superior aged 37, was referred for sensitization tests (to H.C.H.) on July 1, 1937. Her complaints were loss of vision in the left eye which had occurred six years previously, attacks of clouding of vision in the right eye of about the same duration, and frequent episodes of indigestion since early childhood. She had always felt tired but this seemed to have no relation to orbital pain or menses.

The eye symptoms began on February 26, 1931. The patient awakened "seeing stars" and feeling very dizzy. She assumed she was having a bilious attack and so returned to bed. As resting only made the symptoms worse she decided to go for a walk. While walking, sand blew into the right eye and when this eye was closed stars were seen only in the left eye. No blurring of vision or other symptoms referable to the eye had been experienced previous to this date. The physician who was then consulted believed the condition was due to a hemorrhage into the left eye and at his suggestion heat was continuously applied. The vision, however, progressively decreased so that in two days the patient became blind in the left eye.

Three months later, May 10, 1931, similar but less marked symptoms were experienced in the right eye. As the patient stooped over there was a clouding of vision and a marked increase in the size of the blind area. An ophthalmologist reported at this time that there was a bilateral optic neuritis and a diagnosis of multiple sclerosis was made. The following report was given by him.

*Presented before the Section on Eye, Ear, Nose and Throat, 101st Annual Meeting of the Illinois State Medical Society, Chicago, May 20, 1941.

The right vision was 0.6 and left vision nil with bilateral optic neuritis with choked discs. The right vision gradually cleared and the left disc became atrophic, secondary in type. Twelve injections of intravenous typhoid vaccine were given, and these were complicated by multiple arthritic joint pains which cleared up gradually. Spinal fluid was negative. No foci of infection were found. The patient was last seen by him in 1932. The eye symptoms gradually decreased in intensity although slight clouding was noted frequently.

The patient had always had difficulty ingesting milk and eggs. Ice cream regularly caused violent abdominal pain and usually hives; eggs were distasteful and were refused; raw apples caused a foaming about the mouth and marked bloating, and there was a history of several other minor food idiosyncrasies. Recently the patient had tried to build up her general health by taking eggs and milk and it was during this time that the right vision began to blur and orbital pain appeared. At the suggestion of one of us (B.C.) she markedly reduced the intake of milk and eggs and obtained considerable relief from her eye symptoms. Blurring of vision regularly followed the ingestion of milk or eggs in any appreciable quantity, the intensity and duration of the symptoms depending upon the amount ingested.

Because of the definite dietary history the patient was at once given detailed instructions as to the rigid elimination of eggs and milk and tests were started. Scratch tests were negative and intradermal tests were soon discontinued because of the excessive irritability of the skin, there being a positive reaction even to the control test.

Physical findings were essentially negative. The blood pressure was 112/70. Blood examination showed hemoglobin 78 per cent, 3,840,000 red cells, and 8,400 leukocytes, with a differential distribution of polymorphonuclears 60 per cent, lymphocytes 35 per cent, monocytes 4 per cent and eosinophils 1 per cent. There was an absence of free acidity and a total of 10. The Wassermann and Kahn reactions were negative.

The eye findings (B.C.) at this time were as follows: The right vision was 1.5-1 and the left vision was hand movements at one foot. The right pupil reacted promptly to light and con-

vergence; the left pupil reacted slightly. The consensual reaction from right to left was present but was reduced from left to right. The right disc markings were indistinct with moderate pallor and the media clear. The left disc was atrophic, the margins and vessels blurred and the media clear. There was enlargement of the blind spot in the right eye but no central scotoma could be elicited for colors or white test objects. The left field could not be outlined. (Figs. 1 and 2)

Liver extract by mouth was not tolerated so ferric and ammonium citrate was given, together with hydrochloric acid and calcium gluconate.

After one week she reported that she was feeling much better generally. The right eye was comfortable, with vision of 1.5. The blind spot at this time with 1.0/1000 test object was almost normal in size.

In six weeks the patient returned saying that she was much improved. She had remained free from all symptoms and had had only one slight attack of blurring of vision following the ingestion of meat seasoned with onion. Calcium gluconate caused a marked sensation of bloating and so calcium lactate was suggested. The patient was instructed to return in six weeks if symptom free for oral desensitization to milk.

She was not seen again for six months. In the interim she had remained free from all symptoms and had gained five pounds. She had been unable to take milk even in small amounts in cooked foods, and all attempts at oral desensitization to cow's milk and canned milk had been unsuccessful; blurring of vision occurred regularly after the first dose. Dicalcium phosphate was acceptable in seven and one-half grain dosage, but she was unable to take any form of cod liver oil concentrate. Desensitization to fresh and canned goat's milk was likewise unsuccessful.

During the next three years the patient remained free from all symptoms, and was not seen again until October 26, 1940. A hysterectomy had been done seven months previously and recovery was excellent. During all this time the diet had been rigidly followed, the only change being an increase in the intake of pastry and bread. The only known added food intolerances were to rare beef, especially steak, which caused a "lump-like" sensation in the abdomen, and to an excess of orange or grapefruit which caused nausea, belching and a slight blurring of vision.

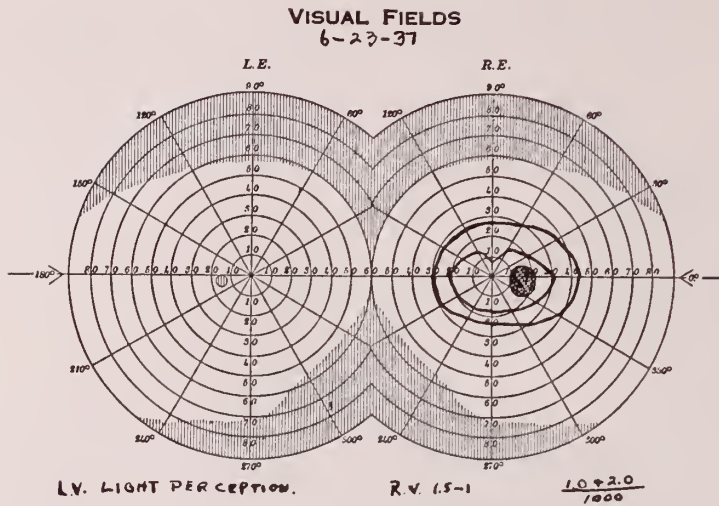


Figure 1

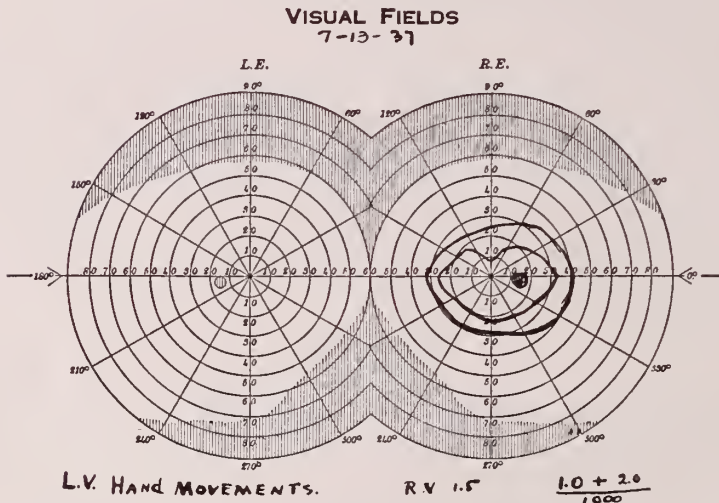


Figure 2

For the preceding two months, at intervals of one month and for periods of one week there had been a feeling of increased general tension and a fairly marked recurrence of eye symptoms even though the diet had been rigidly followed.

At this time she reported to one of us (B.C.) for correction of blurred vision and presbyopia. The right vision was 1.5 and the left vision was hand movements at three feet. Right Jaeger was 0.50 at 36 cm. which was corrected to Jaeger 0.37 at 35 cm. with +1.50 and +25 axis 180. The discs, fundi and media remained the same.

Because her symptoms had occurred at about the expected time of a menstrual period, it was

thought that endocrine therapy was indicated and theelin was given. Ten thousand units of theelin caused a violent reaction in the form of nausea, vomiting and generalized aching of three days' duration on three occasions, but 2,000 units every three days was well tolerated. This, in addition to the elimination of new food sensitivities suggested by the history, that is cottonseed, citrus fruits and beef, has afforded the patient complete relief. The diet has been supplemented by acidulin, dicalcium phosphate, viosterol, B-scorbic acid, iron, and a series of liver injections at three to four month intervals. The only evidence of inhalant sensitivity was that of hoarseness which was of six months' duration, and which disap-

peared completely following the elimination of feathers.

In January, 1941 her blood calcium was 11 mgs. per 100 c.c., phosphorus 3.75, and the blood eosinophilia has varied from one to two per cent. Passive transfer tests done in January 1941 were entirely negative to milk, casein, lactalbumin, eggs and a wide variety of common foods. On the management outlined the patient has remained free from all symptoms, according to a letter received on May 3, 1941.

SUMMARY

This patient has a complete optic atrophy in the left eye. There have never at any time been any scars to indicate a hemorrhage and the symptoms we believe have been due either to angiospasm or retrobulbar neuritis. Complete freedom from transient neuritic symptoms in the right eye has followed the elimination of the foods to which the patient has been found sensitive. The gastro-intestinal symptoms represent the primary allergic response with the eye symptoms secondary.

CONCLUSION

The etiology of optic neuritis is varied, but in cases which do not respond to the usual methods of therapy allergy should be considered as a causal factor.

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LAWSUIT DANGER

It's a wise precaution to have the patient either lie down or sit in an armchair when you take a blood sample. Reason: Patients occasionally faint during this procedure.

Thus, a colleague was taking a sample from a woman patient recently, when suddenly she fainted. She fell from a stool, hitting her head on the corner of a table. It *might* well have meant a tough and expensive lawsuit.—M.D., New York.

CERVICAL POLYPS

WILLIAM B. SERBIN, M.D.

CHICAGO

The little things in life frequently fail to attract attention either because they are apparently insignificant in size and importance or because they are so obvious that they are not considered worth while. To cite one important example of the less obvious, we might recall that early cancer is microscopic in origin. And yet this disease assumes large proportions. Because of the interest of the informed public in matters of hygiene and public health and more especially, in such programs as maternal welfare and cancer control, we, the medical profession, should constantly be on the alert to detect these little growths in which cancer might arise in the hope that we may diagnose this malady in its earliest stages. Our subject then is apropos because malignancy in these lesions is rare and because cervical polyps are easy to detect if we train ourselves in a simple routine and never deviate from it.

Definition. — Cervical polyps are small tumors varying in size from a few millimeters to several centimeters in length. They are usually tongue-shaped, sometimes sessile, but more often pedunculated; have a smooth surface, are bright red, although occasionally they are cyanotic, and are attached to the cervical mucosa or slightly above the internal os in the uterus or to the vaginal portio.

Frequency. — The frequency varies with the class of patients and the thoroughness with which the cervix is examined. Geiger found 32 cases in 2048 gynecologic patients in the Cook County Hospital Tumor Clinic, an incidence of 1.5 per cent. Israel found 117 patients with cervical polyp in a five year period among 3900 hospital patients or 2.4 per cent; while Henriksen found 91 cases in 1500 gynecologic patients studied — an incidence of 6 per cent. The general incidence is about 3.5 per cent. The age incidence varies; they have been found as early as 21 months of age, as in a case reported by Gibb, and as late as 80 years of age, but their greatest frequency occurs in the decade from

forty to fifty years. They are most often single although they may be multiple. Fluhmann, in 100 cases analyzed completely, found single polyps in 95 per cent. They are believed to occur more often in the parous than in the nulliparous. In Israel's series, 9 of 117 patients had had children; although Henriksen states that they are twice as frequent in women who have never borne children. My own experience has been that they are more frequent in women who are pregnant or who have borne children than in those who have never been pregnant.

Etiology. — Cervical polyps are true neoplasms. They may arise from normal tissue but more frequently do so at the site of a previous lesion, or in association with pregnancy. They may take origin from a pre-existing chronic inflammation as, for example, at the site of a chronic cervicitis or in association with pregnancy because of an hyperemia and edema, or because of pregnancy hormonal stimulation. Chronic inflammatory reaction and trauma seem to be the primary etiologic factors. Geist is of the opinion that cervical polyps are inflammations similar to nasal polyps associated with infection and sinusitis. This is also the opinion of Struthers, Erdman and Morris with reference to polypoid growths in the gastro-intestinal tract.

Symptoms. — There are two cardinal symptoms of cervical polyps; these are vaginal bleeding and leukorrhea. The former is usually metrorrhagic in character, although occasionally it may be menorrhagic. The vaginal discharge may consist of clear mucus or occasionally may be purulent. The symptoms may subside without treatment only to recur as a result of inflammatory reaction, interference with their blood supply or trauma. Pain, cramps and backache are usually absent.

Pathology. — *Gross:* We have stated that cervical polyps are true neoplasms. They are soft, friable, strawberry-red and occasionally cyanotic. They bleed easily and the tip may occasionally be infected or necrotic. The polyp can be seen protruding from the cervical canal or it may be attached directly to the portio. The direction of growth is usually downward, although Lifvendahl reports a case in which the direction of growth was upward and into the cavity of the uterus.

Histology: Most polyps are glandular in character and also mucous-secreting. They tend usually to reproduce the exact character of tissue from which they take origin. If they originate from the mucosa of the cervical canal, the epithelial covering consists of high columnar or cuboidal cells similar to the mucosa of the cervical canal. If they arise from the portio, the epithelial covering consists of stratified squamous epithelium. The stroma is thin, edematous, and frequently contains cervical gland-like structures; these may be simple, racemose or markedly branched. The cervical epithelium is secretory in character and frequently these glands become cystic and the epithelium lining such cysts may be flattened. In some cases the epithelium surrounding the polyp may be squamous, having replaced the original columnar epithelium. This may be a true metaplasia or a benign type of so-called epidermalization or epidermoidization. Such changes have been described by Fluhmann, Novak and Te Linde. The diagnosis of malignancy frequently hinges on these points. There are numerous blood vessels in the stroma. These are frequently congested and account for the bleeding. The tip of the polyp when gangrenous may contain evidences of inflammation of a chronic nature, usually consisting of round cell infiltration. The base of the polyp has similar changes but in addition, in those rare instances where cancer has been found, these may be continuous with a carcinoma of the cervix.

Polyps which arise high in the cervical canal near the internal os or slightly above it may reproduce an endometrial pattern. This may consist of uterine glands resting on a uterine type of stroma and may also reproduce the changes associated with the menstrual cycle. Clinically, with this type of polyp, the vaginal bleeding may be menorrhagic in character. Sometimes pathologic changes of another nature may be found. In rare instances tuberculosis, and in about one per cent of all polyps subjected to microscopic examination, cancer has been found. Carcinoma in polyps has been reported by Bishop, Fluhmann, Geiger, Heaney, Novak, Stein and Te Linde. During pregnancy decidual reaction in the stroma has been reported by Martines and Miller. This is interesting because the polyp partakes of a decidual reaction. Usually cervical mucosa does not participate in this reaction.

This parent type of tissue apparently originated in the endometrium. Sarcoma in cervical polyp has been reported by Eden and Lockyer.

Diagnosis. — On vaginal examination those polyps which protrude from the cervical canal can be palpated and occasionally made to bleed. Where there are multiple polyps in the cervical canal and not palpable to the examining finger, diagnosis may be difficult. Speculum examination reveals the growth at once. In cases where a growth is suspected high in the cervical canal Curtis recommends bisection of the anterior lip of the cervix. This is a hospital procedure and requires also some upward dissection of the bladder. All polyps must be subjected to microscopic examination to rule out malignancy and to detect other types of pathology. Polyps must be differentiated from cervical fibroids, erosions and other neoplasms, but microscopic examination will settle these points. During early pregnancy bleeding from a cervical polyp must be differentiated from threatened abortion; and in late pregnancy from placenta previa. Usually speculum examination together with the history will make the diagnosis.

Treatment. — Cervical polyps are frequently treated merely as an office procedure. They may be twisted off or removed by snare, cautery or curet. All of these methods are satisfactory; whichever method is employed it is important to remember that the polyp should be removed completely and the base carefully cauterized. It is well to point out that if the tip of the polyp is seized and crushed with a heavy instrument, pathologic examination is rendered difficult. To avoid this difficulty I sometimes employ a light weight ear wax tenaculum; this instrument has the advantage of having two small prongs facing in opposite directions. It can be applied lightly and only slight tension exerted without destroying the polyp for microscopic examination. It enables one also to reach for the base of the polyp, to remove it intact, and the base then can be satisfactorily cauterized. If bleeding is troublesome cauterization should be thorough but careful. Electrocauterization is more satisfactory than cauterization with silver nitrate. Packing is usually unnecessary.

In patients with multiple polyps high in the cervical canal, bisection of the cervix as mentioned above may be necessary. Such lesions

may then be curetted by direct inspection and the cervix sutured.

Total hysterectomy may become necessary in cases of true carcinoma. Te Linde points out that many times on the basis of metaplasia or epidermalization, lesions which at first site appear to be cancer are really not malignant. To subject patients to radical hysterectomy would, therefore, add to the mortality of that operation. Should hysterectomy become necessary, the growth and the associated endocervicitis must be first treated thoroughly.

Radium therapy is suitable in proved cases of malignancy and also in patients who are poor operative risks. Radon needles or radium element may be employed. In patients subjected to radiotherapy the cervix should be examined at regular intervals and dilated if necessary to prevent accumulation of secretion.

Electrocauterization of the base of the polyp is very satisfactory. It may be repeated two or three times and it destroys the base in which carcinoma has been known to occur. Combined electrocauterization and radiotherapy may also be carried out in cases where it is deemed necessary and even for purposes of prophylaxis.

Polyps may be removed safely during pregnancy. The best treatment during pregnancy is removal by snare and cauterization. The more radical types of treatment mentioned above are usually not necessary except in extreme cases. Polyps found during pregnancy may exhibit a decidual reaction and are rarely if ever malignant.

All tissue removed should be subjected to microscopic examination and careful follow-up carried out.

CASE REPORTS

Case 1. — Mrs. L. P., aged 35, married five months, nullipara. Past medical and surgical history negative. Menstrual history regular. Present complaint: Leucorrhea and blood tinged vaginal discharge. General physical examination essentially negative. Vaginal examination: Tight introitus; urethra, periurethral glands and Bartholin glands normal. Uterus normal in position, small and freely movable. Cervix long, firm; external os closed; small polyp protruding from cervix. This was removed and the base was cauterized with a Post cautery.

Pathological Report: Polyp 1.5 cm. long x 0.3 cm. wide. Polyp contains endometrial tissue with glandular hyperplasia and cystic formations. Congested

stroma with marked inflammatory changes. No evidence of malignancy.

No recurrence. Patient well after five years.

Case 2. — Mrs. J. K., aged 47, married, para II, two spontaneous deliveries. Pain right side. Patient has a known ovarian cyst on right side. Relaxed pelvic floor; uterus freely movable and in normal anteversion-anteflexion. General physical examination negative. Cervical polyp protruding through external os which is slightly patent.

Pathological Report: Increase in blood vessels of polyp. Numerous glands in stroma. Glands lined by columnar cells. No malignancy. No recurrence after two years.

Case 3. — Mrs. E. H., aged 39. Pain on both sides of pelvis and backache. Past obstetric history: Three spontaneous deliveries. During the third pregnancy five years before patient had a cervical polyp removed. General physical examination negative. Perineum relaxed. Uterus in normal anteversion-anteflexion. External os patulous. Polyp about 1.5 cm. long protruding through external os. Polyp removed. Base cauterized.

Pathological Report: The polyp is covered with squamous epithelium, the basement of which is intact. Numerous glands in stroma lined by columnar epithelium. In some places a transitional type of epithelium is noted. No evidence of malignancy. Diagnosis: Benign polypus.

No recurrence after six months.

Case 4. — Mrs. A. W., aged 44. General physical examination negative. Three previous pregnancies. Vaginal examination revealed a cervical polyp. Dilatation and curettage of uterus and cervical polyp removed by curet. Pathological diagnosis: numerous tubercles and round cell infiltration. No recurrence and no evidence of tuberculosis elsewhere to date.

Case 5. — Miss L. K., aged 68. Cholecystectomy three years ago. Patient has had multiple fibroids. Never pregnant. Hysterectomy. Pathological diagnosis: Degenerated endometrial polyp with carcinomatous changes. No known recurrence after six months.

Case 6. — Mrs. M. F. Vaginal bleeding. Cervical polyp discovered on vaginal examination. Dilatation and curettage, and removal of polyp by curet. Pathological diagnosis: Early adenocarcinoma in polyp; nests of glandular tissue found with definite carcinomatous changes. Treatment: Fifty milligrams of radium (needles) inserted into cervix for twenty-four hours. No recurrence after six months.

SUMMARY AND CONCLUSIONS

Cervical polyps have been described as usually benign lesions. Their etiology, symptomatology and pathology have been discussed. Reference has also been made to the fact that rarely such lesions may be the seat of a primary or

secondary carcinoma. They may also contain other types of pathology, such as chronic inflammation and tuberculosis. Emphasis has been placed on careful examination and removal, pathologic study and clinical followup. Treatment has been discussed and six typical case reports have been included.

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DISCUSSION

Dr. Mark T. Goldstine, Chicago: I think we should be very grateful to Dr. Serbin for his presentation of cervical polyps. This should sharpen our interest a little in this topic. Dr. Serbin has not left very much for me to discuss. About all I can do is to emphasize some of the points that he made and possibly add one or two of my own from my experience.

As he said, polyps are usually small. I do not know whether he said insignificant, but to me a polyp is like a foreign body in the eye: it is big until we get it out and know what it is and what it is going to do. They should be very carefully handled. They are interesting because there is such a variety of them. They often not only present very interesting histologic pictures but they lead us to other things. Several times in removing a cervical polyp it has led me to an old metal pessary put in from ten to twenty-five years before and forgotten. Occasionally we see a polyp with a long pedicle large enough so that it protrudes from the vulva. The patient thinks this is a prolapse and occasionally the physician thinks it is too.

The polyps that follow gestation are very interesting, particularly if they are removed in one's office. Those polyps when removed bleed profusely because their bases are very rich in blood supply, and when twisted off in the office it may mean a rapid ambulance ride to the hospital in order to check the bleeding. In that way they are very interesting.

The mucous polyps are usually benign but mixed up with a mucous polyp you may find a polyp form you have seen in some of Dr. Serbin's illustrations — the endometrial polyp. I do not think the polyp of any endometrial type is much influenced by hormones.

The histology of a polyp is very important, and the whole polyp should be examined. If the whole polyp is not examined, the base should be if there is any suspicion of malignancy.

Dr. Serbin pointed out that the early diagnosis of carcinoma is important. You can repeat that as often as you want to. The early diagnosis of carcinoma you miss is the one that bothers you.

Now about treatment. Early in my clinical work I came under the influence of Professor Zeit. Those of you who knew him knew how uncompromising he was with anything that smacked of malignancy, and when he examined a polyp and was fairly certain it was malignant, nothing would do in the treatment except panhysterectomy. I have followed out that course of treatment where I have been fairly certain of malignancy, and up to date I have no regrets about it. One advantage in removing a uterus of that kind is that when you get a recurrence the first one will come in the organ where it originally started. If you have a carcinomatous polyp and you get a recurrence, you usually get it in the uterus first. Particularly in the diagnosis of carcinoma it is not very pleasant at autopsy to find metastatic carcinoma that you can trace to overlooked early carcinoma of the cervix.

One other caution about polyp that may give you some distress is after hysterectomy where you leave the cervix. Occasionally you will have some bleeding. That bleeding is very frequently due to an overlooked polyp high in the cervical canal. So it is a good precaution to examine the cervix carefully, particularly for polyps, if you are planning to do a supracervical hysterectomy.

I have no argument with the use of radium or cautery. Any treatment that will give you a good result is all right, for non-malignant polyps. If you use radium in the cervix you should make a careful follow-up to dilate the cervix in order to prevent stricture.

Dr. William T. Carlisle, Chicago: I realize that Dr. Serbin's paper has to do chiefly with mucous polypi, but having seen three patients within the past five years who developed sarcoma as a sequel to fibroid polypi, it seems an opportune time to emphasize that possibility. One patient, aged 34, had a lemon sized polypus extruding through the cervix. Her essential complaint was bleeding. Histologic examination indicated a benign fibroid polypus. Three months after removal a larger polypus was removed also apparently benign. Six months later this patient had a generalized sarcomatosis.

Recurrent fibroid polypi should be looked upon with grave concern; in spite of the innocent histologic picture some of them become sarcomatous.

MENINGITIS WITH A DIABETIC COMA

WM. D. McNALLY, A. B., M. D.

CHICAGO

The following case presented some difficulty at first in arriving at a diagnosis because of the finding of sugar in the urine.

A well nourished young lady, E. C., aged 19, was in good health until December 14, 1940, when she complained of generalized aching of the joints and a slight headache. This occurred about one o'clock in the afternoon. The nurse, where the girl was employed, thought the patient was coming down with a cold and advised her to go home. She rode on a crowded bus for a distance of about seven miles and during this time said she had developed a period of sweating. Upon reaching home her headache became worse, she was drowsy, then semiconscious. The writer was not called until ten o'clock the following morning and found the patient in a coma. Her mother said the girl complained of the headache as being chiefly in the frontal and occipital regions, and that the previous afternoon she had been very irritable and had become progressively weaker. There was no history of recent injury.

Although she had been in an automobile accident the previous summer and had struck her head hard against the windshield, she had recovered completely from that injury. There was no recent illness with the exception of a sore throat about a month previous. Had measles and chickenpox in childhood. There was no infection of the ear at any time. She had been advised to have an abscessed tooth removed several months previously but this was not done. The removal of tonsils and adenoids at the age of six was the only surgery the patient had had.

She was admitted to St. Joseph's Hospital on December 15, 1940. System inventory was essentially regular with the exception of the previously described symptoms. Family history was negative for epilepsy, diabetes, heart disease, tuberculosis, and cancer. Physical examination shows a well developed young girl who appears acutely ill and is comatose. Moans when moved. There is no evidence of injury to the head. The pupils are small and react to light and accommodation. The right eye shows a paresis of lateral rectus. There is no discharge of blood from either ear. The drum membranes appear normal. There is no discharge from the nose. At the time of this examination it was impossible to open the mouth which was clenched tightly for seventy-two hours. The face showed a left sided weakness. No evidence of a goiter or adenopathy. A marked stiffness of the neck was present. The heart rhythm was regular with normal tones. There was normal resonance of the lungs and normal sounds. The abdomen was soft, no evidence of masses or tenderness. No edema of extremities, no evidence of injury or paralysis, and no joint pathology apparent. There is no apparent paralysis and no joint pathology apparent. There is no apparent paralysis or paresis of any extremity. Paresis of the fourth nerve on the right and of the seventh on the left side is present. The deep reflexes are equal and active; the abdominal is absent; Babinski is positive, Gordon, Oppenheim, and Hoffman — negative. The meningeal signs are all markedly positive. Neck is very stiff and resistant to flexion. Kernig's sign is positive. Brudzinski's neck and leg signs are present.

An examination of the urine showed a 3 plus sugar. Because of this fact, the patient was immediately given 15 units of insulin, but her con-

dition remained unchanged. After blood was taken for culture, 2000 cc. of normal saline solution was administered, also 2 grams of sodium sulfapyridine and 1 grain of sodium luminal for restlessness. On the fourth day she was given 15 grains of sulfapyridine every four hours, and 1 grain of sodium luminal. On the sixth day the sulfapyridine was reduced to 0.5 gram every four hours. On the seventh day the sulfapyridine was stopped because the patient had become cyanotic.

Even though there was a history of no accident, it was thought advisable to have an x-ray of the head. Regular views of the skull showed dense, thick, skull tables. No evidence of increased inter-cranial tortion and the sella appears normal. Regular views of the mastoids show many average sized cells, all of which appear to be air containing. There is no x-ray evidence of clouding of any of the mastoid cells, and no definite evidence of bone destruction.

The patient remained comatose for seventy-two hours. Shortly before she regained consciousness, Dr. Archibald Hoyne was called in consultation, who gave his opinion that it was a meningitis of otitic origin, notwithstanding the fact that there was no discharge from the ears.

After the third day of hospitalization, the administration of the saline solution was stopped, urine and blood examinations were made. The blood sugar was normal and urine negative. Her jaws began to loosen so that she was able to take water by mouth. She would awaken at intervals of 20 to 30 minutes, at which time she grimaced and clamped her jaws tightly, also kicked the legs and rubbed her face alternately with the hands as if to brush something away. She did not respond when called by name. The pupils were wider and reacted somewhat to light.

LABORATORY: Blood Counts: W.B.C.'s 26,800 on entrance; December 18, R.B.C.'s 4,630,000, W.B.C.'s 8,400; December 21, R.B.C.'s 4,400,000, W.B.C.'s 6,650. Spinal Fluid: W.B.C.'s 12,450, Polys 95%, Lymphocytes 5%; Smear: no organisms seen. Blood Culture: No growth after twenty-four hours incubation. Urinalysis: December 16, Color — yellow, specific gravity — 1.035, albumen — trace, sugar — 3 plus; December 20, specific gravity — 1.019, albumen — trace, occasional pus cells, many epithelial cells, sugar — negative; December 22, sugar — negative. Serology: Kahn — negative. Cultures: Culture of spinal fluid on blood agar shows no growth after two days incubation. Blood cultures show no growth after two days incubation.

COMMENT

The finding of sugar in the urine in an unconscious patient would lead one to believe that he was dealing with a diabetic coma; however, all the symptoms pointed to a meningitis. The diagnosis was also questioned when the spinal fluid and blood culture gave no growth after two days. Another interesting feature of this case was the fact that it was impossible to open the mouth which was clenched tightly for seventy-two hours and the quick response the patient made to sulfapyridine.

OPPORTUNITIES FOR YOUNG PHYSICIANS
IN CIVIL SERVICE

Until recently, the opportunities for a career as a Federal medical officer, other than those afforded in the commissioned services of the Army, Navy and Public Health Service, have not received due consideration by the majority of the medical profession in the United States.

Provisions have been made for the employment of physicians in both the commissioned and civilian services by certain laws enacted by Congress and Executive Orders issued by the President. During non-emergency periods approximately the same number of physicians are employed in the classified civil service through open competitive examinations under the provisions of the Civil Service Act and rules, as are commissioned in the Army, Navy and Public Health Service.

Because of the present national emergency, large numbers of recent graduates of medical schools have been employed to provide medical care for the growing armed forces of the nation. This trend has brought about an acute shortage of young physicians available for employment in the classified civil service. The medical functions of the Veterans Administration and other Government agencies, however, must go on both in peacetime and during a national emergency.

Inasmuch as it is inevitable that the ranks of medical officers already in the various Government agencies will be depleted by retirement of the older doctors and by entrance of the younger doctors into active military duty, an effort is being made to build up the staffs of these agencies with young physicians and recent graduates of medical schools who wish to make the Federal service a career. It is therefore necessary to bring to the attention of young physicians the opportunities which are afforded by such a career.

In the past, opportunities afforded by a medical career in the civil service have been obscure in the minds of the majority of the physicians in this country inasmuch as they have not been informed generally of the fields or branches of medical practice which

are represented in the civil service. It is not generally known that a physician in the civil service may participate in any phase of medical activity, ranging from a rural practice to the most highly specialized fields.

It may be well to emphasize that not all civil service physicians are employed in large Government hospitals. On the contrary, a considerable number are engaged in the general practice of medicine, for example, those employed in the Indian Service of the Department of the Interior. The Indian Service, besides maintaining general hospitals and sanatoria ranging from 50 to 250 beds, has a very active outpatient department connected with its hospitals, and many of its physicians make home calls, make field trips, conduct school examinations, and administer general public health measures among the Indians.

Young physicians may be employed under civil service as far south as Panama and as far north as Alaska. In the Canal Zone, the young physician who is interested in tropical diseases may receive excellent opportunities to study that subject. Civilian physicians in the Canal Zone are appointed mainly for duty in dispensaries and for quarantine work. The dispensary work consists of general practice involving the attending of Government employees and their families, crews and passengers of vessels, etc. The work of quarantine physicians consists of quarantine and immigration inspection of crews and passengers on incoming vessels.

Positions in Alaska under the Indian Service will appeal to young physicians who have an adventurous spirit, as will positions in the Coast and Geodetic Survey, which afford an opportunity for young physicians to spend some time at sea on Coast and Geodetic Survey vessels. The task of physicians employed in Alaska under the Indian Service is a formidable one because of the climate and the remoteness of some of the villages. However, young physicians of robust health who go to that area have an opportunity to render a great service to humanity.

It is in the fields of general practice, tuberculosis, psychiatry, surgery and public health that the largest number of Federal medical officers are engaged. The opportunities for research in these and other fields of medicine are excellent. Because of the emphasis placed on career service by modern personnel administration, "in-service training" is playing an important part in the life of the young Government physician. In the Veterans Administration, "in-service training" affords opportunities for graduate study. The Veterans Administration operates a large tumor clinic at Hines, Ill., psychiatric clinics at its various hospitals, Chest surgery clinics at the tuberculosis hospitals, and at Mt. Alto Hospital, Washington, D. C., it conducts a heart research clinic. These clinics afford excellent teaching opportunities for young physicians.

At St. Elizabeths Hospital, Washington, D. C., fine opportunities for residencies and internships in neuropsychiatry are open to recent graduates of medical schools; these residencies and internships rank among the best in the United States. St. Elizabeths Hospital

is under the jurisdiction of the Federal Security Agency.

The functions of medical officers in the Food and Drug Administration of the Federal Security Agency have become of increasing importance since the passage of the Federal Food and Drug Act. Medical officers in the Food and Drug Administration are engaged in a critical review of the labelings of medicines in the light of their composition for the purpose of ascertaining whether or not the therapeutic representations are true or false as judged by a consensus of present-day medical opinion. This work offers excellent opportunities to recent graduates of medical schools who have had, in addition to their regular medical education, experience in pharmacology.

Also of increasing importance have been the medical functions of the Children's Bureau in the Department of Labor. The Child Hygiene Division of the Bureau carries on research and investigation involving fundamental technical medical study of the mental and physical condition of children in relation to heredity, environment, nutrition, and the efficacy of various methods of community health work. There are opportunities in this Bureau for young physicians with special training in pediatrics, obstetrics, or public health procedure, who are interested in extensive research study in connection with maternal and child health and services to crippled children.

In the Public Health Service, there are, in addition to the commissioned force, medical officers who are appointed under provisions of the Civil Service Act and rules. These medical officers are appointed as Acting Assistant Surgeons and are usually detailed for local duty in the vicinity in which they reside. From time to time, however, there is opportunity for them to transfer elsewhere. Acting Assistant Surgeons are employed in connection with practically all the activities of the Public Health Service. These include hospital and relief work, quarantine and immigration work, field investigations, and epidemic control duty. The Public Health Service operates marine hospitals and relief stations throughout the United States. The beneficiaries in these hospitals and relief stations consist principally of merchant seamen, officers and enlisted men of the United States Coast Guard and civil employees of the Federal Government injured in line of duty. A considerable number of Acting Assistant Surgeons are assigned to this work.

The services of Acting Assistant Surgeons are utilized at a large number of marine quarantine stations in connection with the inspection of vessels entering the United States from foreign ports, and in connection with the medical examination of aliens entering this country. There are opportunities in the Public Health Service for Acting Assistant Surgeons to conduct investigations pertaining to industrial hygiene, goiter, anthrax, influenza, malaria, pellagra, pneumonia, tuberculosis, typhoid fever, child hygiene and public health administration.

Medical officers are employed in various other Government agencies. Two medical officers in the Government Printing Office are in charge of a small well-equipped hospital in which employees who are injured or become ill while on duty are treated. The Bureau of Engraving and Printing requires the services of a physician for similar duty. The Census Bureau of the Department of Commerce employs physicians who engage in medical statistical study. In the Civil Service Commission a number of medical officers are engaged in medical activities pertaining to Government employment and disability retirement. This activity is a combination of insurance, industrial and administrative medicine and affords young physicians a basic training in these fields which is unique in the United States.

Inasmuch as the Veterans Administration employs more civil service physicians than any other Government agency, it might be well to discuss this agency more fully. The medical service of the Veterans Administration is comprised of regional offices, facilities and diagnostic centers. The term "facility" is applied to various types of field stations, including those which are hospitals only, those which may provide domiciliary care and hospitalization, others which are a combination of regional offices and hospitals, and still others which are a combination of regional offices and homes. Facilities may be primarily designed for general (medical and surgical) service, or for tuberculosis or neuropsychiatric service. However, some have a mixed service which may be a combination of any of the above services.

The diagnostic centers located at Washington, D. C., Hines, Ill., and San Francisco, Calif., were established for intensive study and observation of patients presenting diagnostic problems, and have consultant staffs consisting of physicians with national reputations in their fields. The diagnostic center at Hines, Ill., has one of the largest and most modern tumor clinics in the world.

Small clinics for thorough diagnosis and treatment of malignant growths are located strategically in facilities in New York City, Washington, D. C., Atlanta, Ga., Portland, Ore., and Los Angeles, Calif.

In nine facilities, scattered throughout the country, centers have been created for special chest surgery.

At the Veterans Administration, research is supervised by specially trained physicians on the staff of the Medical Director, and projects are entrusted to physicians having the basic specific qualifications to conduct them.

At the present time, the chances for early appointment of recent graduates of Class A medical schools who have served an approved internship are good in the Government service. Open continuous examinations have been announced by the Civil Service Commission to fill vacancies in the position of Associate Medical Officer. Physicians appointed to these positions in the Veterans Administration have excellent chances for promotion. If their records are satis-

factory, they may look forward with reasonable certainty to a step-up in grade and salary within the first two or three years of their service. The cardinal criterion for advancement in the Veterans Administration's medical service is demonstrated ability.

The matter of compensation for services rendered is an important item to consider in discussing opportunities for a medical career in the civil service. The majority of physicians are appointed in the Associate grade and receive a compensation of \$3,200 a year minus a 3½ per cent deduction for retirement purposes. The opportunities offered for advancement to \$4,600 and \$5,600 a year are good, and many physicians who demonstrate that they have administrative ability in addition to a sound medical background may advance to \$6,500 and \$7,500 a year. A young physician should not expect to accumulate a fortune when choosing a medical career in the Government service; however, he can look forward to a lifetime of adequate remuneration for his service, satisfactory employment hours, and adequate annual and sick leave with pay. He will in addition receive disability and age retirement insurance at a very low rate.

The above items are important, but of course the most important consideration is the opportunity for which every physician is searching, that is, an opportunity to practice his profession and render efficient service to unfortunate human beings. The United States Government offers this career in medicine, surgery, public health, and other specialties which should be of interest to all recently qualified physicians.

Medical Annals of the District of Columbia

"Annual Scientific Assembly Number," Sept. 1941

A.M.A. JOURNAL WARNS PHYSICIANS NOT TO NEGLECT IMPORT OF DIETS

Declares That The Only Effective Answer
of Profession to Diets Being Published
In Magazines is to Plan Better Ones

Pointing out that recently published diets in many newspapers and magazines are in demand by the public because patients have had difficulty in obtaining them from the medical profession, *The Journal of the American Medical Association* for November 1 says that in the last analysis the only effective answer the physician can make to these diets is to plan and furnish better ones.

"On the street and particularly on the beach," *The Journal* says, "are visible the 'overweights.' In some countries obesity is considered a desirable attribute, but not in this country at this time. Recently, perhaps owing to the change to more revealing clothes, the American public has become 'figure conscious.' In every public conveyance, in newspapers and magazines and on many a daytime radio program the idea of 'the form divine' is hammered into our consciousness. Unquestionably Hollywood has exerted its influence in this regard through the heroines and glamor girls

who exhibit their attributes to millions of fascinated eyes. To photograph well they must be thinner than they wish to appear. In years past 'Hollywood' reducing diets were promoted, the implication being that the Hollywood diet would produce a Hollywood figure. For the most part, these diets were unscientific; sometimes they were dangerous.

"Recently several magazines with a combined circulation of many millions have been publishing diets for reduction of weight. For the most part these diets furnish from 1,000 to 1,500 calories daily and have been planned by persons well trained in dietetics. What attitude should physicians assume toward these diets? Shall we say that the diets are unscientific or dangerous? That would not be true. Should we state that people should never follow a reducing diet without a physician's advice? The magazines themselves urge this. Or should the profession realize that one reason why such dietary suggestions are in demand is because patients have had difficulty in obtaining these diets from their physicians? How many physicians have neglected the importance of diet in the treatment of the patient? 'Doctor, I'm overweight. What would you suggest?' 'Oh, I'd cut down on the fats, starches and sweets.' Why shouldn't this patient welcome some real help from a magazine article? How much time is spent in the curriculum of the medical school in instructing students in the planning of diets?

"These recently published diets are not those of the dietary faddist. They do not contain the 'screw-ball' teachings of William Howard Hay or Benjamin Gaylord Hauser. In general, the diets are excellent. Some may not contain all the protein that they should, and many still require vitamin supplements. But the only good answer that a physician can make to one of these diets is his ability to plan a better one."

An elderly man with lung disease is labelled as "chronic bronchitis" by many practitioners. Bronchitis symptoms should receive further diagnosis. G. N. Meachen, M.D., *Tubercle*, Apr. 1941.

Whatever the outcome of the present war, we may be sure that disease will be the final victor, accounting for the largest number of victims and carrying on its deadly work long after the voice of the last gun has spoken. It has been said that the last war was exceptional in that for the first time the number of casualties from military action exceeded the number of victims of disease. That may have been true of certain armies during the period of hostilities, but it is emphatically not true when the victims of disease among civilians are taken into consideration. Every war produces conditions favoring the spread of disease, of which mass movements of population is one of the most important. In preparation for war the strength of armies is increased by recruits from villages and agricultural districts as well as cities. The former fall ready victims to such diseases as measles and mumps, meningococcic meningitis, and the pneumonias. Frank Boudreau, M.D., *N. Y. State Jour. of Med.*, July 15, 1940.

Clinical-Pathological Conferences

J. J. Moore, M.D., Department Editor.

PRESENTATION OF CASES BY

W. BRAMS, M.D., and O. SAPHIR, M.D.

Michael Reese Hospital

CHICAGO

Case I

W. Brams: This patient, a male, aged 36, was first admitted on March 1, 1940 with a history of recurrent attacks of epilepsy during the past 18 years. He was in an institution three years previously for treatment of these attacks and for chronic alcoholism. He drank only beer in moderate amounts until five years ago. Since then he had consumed at least a pint of whiskey daily and, at times, as much as a gallon.

Examination revealed a coarse tremor of the hands and tenderness, on firm pressure, of the leg and thigh muscles. A diagnosis of grand mal, chronic alcoholism and mild peripheral neuritis was made.

He was readmitted eight months later with a history of cough and pain in the chest of two months' duration. About a pint of foul smelling mucopurulent sputum was brought up daily. He had lost about 25 lbs. during these two months. Tactile fremitus was found diminished at the left base of the chest posteriorly. Breath sounds were diminished and numerous crepitant rales were heard in this area and later bronchial breathing. The temperature was irregularly elevated and rose to 104° at times. Sulfathiazole caused subjective improvement and reduction in fever but no definite cure. Almost five weeks after this admission an abscess, near the root of the left lung, was seen on X-ray. This was confirmed by bronchoscopy, which disclosed pus welling up from the left lower bronchus. Postural drainage, bronchoscopic aspiration, sulfapyridine and supportive measures resulted in marked improvement.

The third admission was about 10 months later. The previous symptoms had recurred following a fresh "cold" five months before and the findings were the same as those of the second hospitalization with the addition that chest findings were now also present on the right and similar to those of the left side. Clubbing of the fingers had developed. Fever persisted, loss of weight continued and the general condition became worse. Bronchoscopy now showed foul pus exuding from the right main bronchus as well as from the left. The stools were found to contain *entamoeba histolytica*. The patient received carbarsone but without effect. Pain developed in the right chest and dullness and rales were present at the right base.

We are apparently dealing with a person who had had grand mal for many years and who, possibly because of inherent inferior mental constitution or unfortunate economic circumstances, had chosen to avoid life's difficulties by escape into the realm of alcoholic forgetfulness. Such a course of action by a poor man is likely to lead to undernourishment, inadequate vitamin intake with development of polyneuritis and to a state of markedly lowered resistance. An upper respiratory infection or ordinary pneumonia, which the average person could overcome, led to persistence of pneumonic infection with necrosis and abscess formation of the lungs in this debilitated individual. The history and findings on his second admission suggested the presence of an abscess in the left lower lung field, a suspicion amply confirmed by X-ray and by the observation on bronchoscopy of pus welling up from the left lower bronchus. Postural drainage, bronchoscopic aspiration, sulfapyridine and general supportive measures resulted in sufficient improvement to warrant the hope that the condition would clear up. This might have

happened in the usual patient but not in this very uncooperative person with evil habits, malnutrition and markedly lowered resistance.

The third admission, 10 months later, disclosed the presence of the same findings with spread to the opposite side. It will be of interest to determine the manner in which the abscess developed and spread to the opposite side and to evaluate the significance of the entamoebae histolytica in the stools, in relation to the lung abscesses. The sputum was not brownish as occurs when an amoebic liver abscess burrows through the diaphragm and penetrates into the lungs. Nor were amoebae found in the sputum either on ordinary examination or after bronchoscopic aspiration. This should be sufficient evidence to exclude pulmonary amoebiasis and the absence of diarrhea could point to the probability that we are dealing with a carrier rather than a patient with active amoebic ulceration of the bowel.

It is quite likely that the patient, during one of his sprees, became stuporous or that he vomited while under the influence of alcohol. It would be easy for him to aspirate gastric contents or injected material into his respiratory passages and for it to remain there until he recovered from his debauch. This together with malnutrition, exposure to the elements and lowered bodily resistance could easily result in pneumonia which would not run an ordinary course but would terminate in pulmonary supuration. Bronchoscopy revealed that pus welled up from the left main bronchus, which means that paroxysms of coughing could spread purulent material throughout the bronchial tree. One could thus trace the persistence and spread of chronic pneumonia in the left lung, its spread to the opposite side and its conversion to supuration with multiple abscess formation.

The diagnosis in this patient would then be:

1. Grand mal and chronic alcoholism with peripheral polyneuritis.

2. Pneumonia of the left lung, possibly from aspiration of vomitus.

3. Abscess formation with spread to other parts of the lung on the same and opposite sides because of the welling up of pus as seen on bronchoscopy. Chronic pneumonia and bron-

chiectasis would necessarily surround these abscesses.

4. Amoebiasis of the bowel, but the patient was probably a carrier rather than a patient with active open lesions in the intestinal tract.

O. Saphir: At the time of postmortem examination the body was that of a poorly nourished white male about 40 years old, weighing approximately 70 kg. The left pleural cavity was obliterated by dense adhesions. The right pleural cavity contained about 450 cc. of a yellowish thick liquid with flakes of fibrin. The heart was about normal in size and shape. The myocardium was soft and of boiled appearance. The aorta disclosed a minimum amount of arteriosclerosis. Both lungs were much heavier than normal, the left weighing 800 gm., the right 850 gm. On section the left lung presented many cavities, irregular in outline, but apparently lined by smooth dark red membrane. These cavities communicated with the bronchial tree and contained much foul smelling purulent material. Between the cavities there were many areas which were much firmer than the surrounding lung tissue, grayish white with dark streaks presenting a fibrillar appearance with no evidence of the normal lung architecture. Such areas were found throughout both lobes. There also were present many foci which were coarse, granular and much drier than the surrounding lung tissue. Multiple abscesses of various ages were also seen. The right upper lobe was air containing and only a few small, finely granular, dark grayish red areas were seen. The right lower lobe was much firmer than normal and on section presented a few cavities which were similar to those in the opposite lung. Many areas of consolidation, which again were finely granular and relatively dry, were noted. The trachea and bronchi contained much reddish yellow purulent material. The liver and kidneys showed severe cloudy swelling. There was acute splenic hyperplasia. The mucosa of the stomach was thrown into thick folds and was of cobblestone appearance. The remainder of the viscera and the intestinal tract presented no gross changes. The brain could not be examined.

The outstanding histological changes were found in the lungs. The left lung showed typi-

cal bronchiectatic cavities of varying ages, many of which were surrounded by old connective tissue fibers. There were many regions of completely organized pneumonia, other regions showing recent and organizing pneumonia. The right lung presented a recent confluent bronchopneumonia. No amoebae could be demonstrated in the inflammatory exudate within the lung. There was a typical chronic gastritis.

COMMENT

This case is typical of bronchopneumonia with many of its well known complications. The changes in the lung started apparently two months before the first admission when the patient gave a history of cough and pain in the chest. At that time he apparently contracted his first pneumonia which probably was located in the left lung. The pneumonic exudate did not resolve but became organized. The organizing pneumonia eventually led to the process of carnification which was present throughout the left lung. Perhaps because of the ensuing fibrosis, bronchiectasis developed. This was very extensive but particularly pronounced in the left lung. Also many abscesses were found, some of which were encapsulated. These were more commonly encountered in the left lung. The obliterative pleuritis would correspond in age to the carnification of the lung. Thus the patient showed evidence of the common complications of pneumonia, namely pleuritis, organizing and organized pneumonia, carnification, abscess formation and bronchiectasis. The patient eventually developed severe confluent bronchopneumonia in the right lung, from which he died. There was no evidence of colitis. Thus the presence of amoebae in the stools implies that the patient was an amoebae carrier.

Case II

W. Brams: This 62 year old female patient complained of headache and dizzy spells for 12 years and was brought to the hospital for study. Examination revealed ventricular extrasystoles, accentuated aortic second sound and blood pressure of 195/95. A hard mass was found in the right upper quadrant of the abdomen. An attempt to catheterize the right ureter failed because of the presence of a right ureterocele. The left ureter was patent throughout and excretion of indigo carmine from the left side was apparently normal. The urine contained a trace

of albumen and a few RBC and WBC. The erythrocyte count and hemoglobin were normal, moderate leukocytosis was present and blood NPN and creatinine were within the normal range. Roentgenological examination of the chest disclosed no evidence of metastatic or other abnormalities. Right nephrectomy was performed without difficulty and the patient was returned from the operating room in good condition. Following operation the blood pressure fell to 115/45 and slowly rose, reaching 155/60, eight days later. Examination of the removed kidney showed the presence of pyelonephritic scars and adenocarcinoma. Fever and evidences of pneumonia appeared about three days after operation and the patient's condition gradually became worse until she died 14 days after nephrectomy. It is interesting to note that the patient complained of persistent, severe abdominal pain several days after operation, together with vomiting and distention of the abdomen. Enemas were returned clear or contained some small fecal particles but offered no distinct relief.

The report by the pathologist that the surgically removed kidney was the site of a primary adenocarcinoma disclosed the nature of the tumor found on physical examination. The additional finding of pyelonephritic scars may indicate that the hypertension was on the basis of chronic pyelonephritis. One can suspect that the ventricular extrasystoles were caused by myocardial degeneration due to long standing hypertension and coronary sclerosis.

More important is the cause of death after nephrectomy. There was adequate evidence of postoperative pneumonia and this could result in abdominal distention and discomfort but could hardly account for persistent vomiting and obstipation. The combination of severe and persistent abdominal pain, frequent vomiting and persistent meteorism, together with some constipation speaks rather for some form of ileus. Certainly this would be suspected in the average patient who had had no recent nephrectomy. The fact that flatus was passed and that small amounts of feces could, occasionally, be obtained after an enema, speaks against ileus. It is possible however that the intestinal obstruction was incomplete and that the site was near the middle of the intestinal tract. Obstruction high up in the intestinal tract would produce

shock and more severe vomiting and the patient could hardly survive for 14 days. Obstruction low down should result in complete obstipation. Involvement near the middle, particularly if the lumen of the bowel were not completely occluded, could permit accumulation of sufficient amounts of debris, secretion and bacteria distal to the obstruction to provide some fecal contents after an enema and would not result in shock and the fulminant course so usual in high intestinal obstruction.

The clinical diagnosis would then be:

1. Chronic pyelonephritis, hypertension, coronary sclerosis, myocardial degeneration.
2. Adenocarcinoma of the kidney.
3. Postoperative pneumonia and incomplete ileus near the middle of the intestinal tract.

O. Saphir: At the time of postmortem examination the body was somewhat obese, weighing 68 kg. The recent healed right renal incision showed no evidence of secondary infection. There was also present an old healed lower midline scar. On opening the abdominal cavity 500 cc. of bloody fluid were found. The peritoneal surfaces contained a small amount of fibrin. Old firm adhesions were encountered, extending from the left broad ligament to the mesosigmoid bordering a hiatus through which approximately 60 cm. of ileum and its mesentery had herniated. The incarcerated portions of the ileum were purplish black, apparently necrotic and covered with fibrin. The heart weighed 350 gm. The valvular apparatus was intact. Throughout the posterior wall of the left and right ventricles the myocardium was replaced by a large area of yellow necrotic tissue. Numerous calcific occlusions were found in many branches of the coronary arteries. The right coronary artery at a distance of 2 cm. from its origin showed an organizing grayish white thrombus. The lungs showed no gross changes of note. The liver and spleen showed evidence of chronic passive hyperemia. The right kidney was absent. The surface of the left kidney was finely granular and red. The left tube and ovary were absent. The remaining viscera showed no changes.

The tumor in the kidney proved to be an adenocarcinoma with clear cells. There were no metastases found at autopsy.

COMMENT

The patient apparently had had an arterial hypertension for quite some time, the anatomic entity of which was the arteriolosclerosis of the left kidney as seen at the postmortem examination. The fall of the blood pressure, as the result of the operation (anesthesia?) was perhaps a contributing factor in the formation of the thrombus in the right coronary artery, which resulted in the infarction of the posterior wall of the right and left ventricles. The infarct as seen at autopsy was a few days old. The strangulation of the intestines was apparently due to their incarceration within a recess produced by the fibrous adhesions which had resulted from the old pelvic operation.

FEDERAL WARRANTS ARE ISSUED FOR THE BRINKLEYS

Under the heading, "Alas, Poor Yorrick! I Knew Him, Horatio," *The Journal of the American Medical Association* for October 11 says:

"On September 22 Mrs. John R. Brinkley was arrested in Kansas City on a fugitive warrant based on a Little Rock, Ark., charge of using the mails to defraud. A similar warrant for 'Dr.' John R. Brinkley was also carried by the deputy United States marshal, but the physician in attendance on 'Dr.' Brinkley said that his condition would not permit the warrant to be served. A telegram had been received from the district attorney at Little Rock, Ark., requesting the arrest of the Brinkleys on charges of sending fraudulent promotional materials through the mails. The physician of 'Dr.' Brinkley requested a delay because the leg of 'Dr.' Brinkley had been amputated in the Research Hospital in Kansas City on August 23 and it was reported that he 'suffered a severe heart attack September 2.' It is reported that Mrs. Brinkley stated the bond would be made returnable in Little Rock, where an answer would be made to the fraud charges. Incidentally, it was stated in the complaint that 'Dr. Brinkley had treated some 16,000 persons at a fee of \$750 each or a total of \$12,000,000' and that the Brinkleys had represented 'to certain persons and to others generally' that 'Dr.' Brinkley 'had found a substance which would restore to normal sex vigor weak men and women' and that this and other claims alleged to have been made for the treatment 'were false and fraudulent and the United States mails were used to promote this fraud.' Another principal charge in the indictment was that the defendants 'did falsely pretend that John R. Brinkley was a great surgeon, scientist, and physician, that he, while visiting medical centers in Europe, had found a real substance which when properly administered would restore to normal sexual vigor sexually weak men and women.' The Brinkley hospitals at Little Rock have been closed, and several months ago 'Dr.' Brinkley filed a voluntary petition in bankruptcy in San Antonio, Texas."

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

Governor Dwight H. Green announced the appointment on November 7th of 5 members of the Advisory Board to the Department of Public Health. Dr. Clifford U. Collins of Peoria was reappointed to the Board. The four new members are: Robert S. Berghoff, R. W. McNealy, James H. Hutton all of Chicago and Walter Stevenson of Quincy.

Members of this Board have received the following letter from the Honorable C. Wayland Brooks, Committee on Appropriations, United States Senate — "It made me very happy when I learned that you had been appointed as a member of the Board of Public Health Advisers in the Department of Public Health.

"Our mutual friend, the Governor, has surely made a wise choice in naming you because I know that your efforts will always reflect credit upon his Administration.

"My heartiest congratulations and every good wish go to you.

"If at any time I can be helpful or of service to you or your friends you must never hesitate to call upon me. With every kind personal regard."

COMING MEETINGS

The Robert Sonnenschein Study Group for Medical History announces a lecture by Dr. Armo B. Luckhardt, Professor of Physiology at the University of Chicago, on "Doctor William Beaumont and the Medical Epic of the Northwest Territory" December 10, 1941 at 8:00 P. M. in the Rothchild Amphitheatre of Michael Reese Hospital.

The Fourth Annual Forum on Allergy will be held this year in the Statler Hotel, Detroit, Michigan, on January 10th and 11th, 1942.

The second award of THE FORUM'S Gold Medal for outstanding contributions to clinical allergy will be made this year to W. W. Duke, M. D. of Kansas City, Missouri, who well may be called "the father" of this subject. Illinois men on the program are: Rudolph Hecht, Chicago; Samuel Feinberg, Chicago; Leon Unger, Chicago; Ralph Mills, Decatur. Physicians desiring a program or further information may address the Director, Dr. Jonathan Forman, 956 Bryden Road, Columbus, Ohio.

SUCCESS OF SUMMER ROUND-UP IN ILLINOIS

Mrs. Leonard H. Graf, Summer Round-Up Chairman of the Illinois Congress of Parents and Teachers has recently submitted to her Board her Annual Report of the work accomplished during the spring, summer and fall of 1940.

This report is most enlightening and is of special interest to the medical profession of the state. Mrs. Graf states, "The objective for the Summer Round-Up for the past year has been to arouse the interest of parents in improving the health of children entering school for the first time and to bring about continuous medical and dental supervision of all ages, including the apparently healthy.

"In the 1940 campaign Illinois rated second in the number of Congress Units registering for the Summer Round-Up Campaign. In Illinois 469 units carried through the campaign, 11,800 children were examined in Illinois and 55.6% of the children referred to their family physician, consulted him. — "Once again, I believe for the fifth year now, Illinois has been first in the nation in the number of defects corrected."

County medical societies and individual doc-

tors of the state have cooperated with the Parent Teacher Associations of Illinois in making such a report possible and it is highly gratifying to see such fine results.

Mrs. Graf in closing her report states "The state chairman wishes to express her sincere appreciation for the faithful services, and assistance given by the local and council and district Summer Round-Up chairmen as well as many of our directors and other board members in cooperation with our local, district and State Medical, Dental and Nursing Professions."

MARRIAGES

DAVID O. N. LINDBERG, Decatur, Ill., to Miss M. Helen Gray of Ann Arbor, Mich., recently.

MORRIS WILBURNE, Chicago, to Miss Shirley Winters of New York, October 25th.

JOHN H. SHAMEL, Ashkum, Ill., to Miss Frances Lee Richeson of Chillicothe, Mo., at Canton, Mo., August 10th.

DONALD O. MANSHARDT, Chicago, to Miss Betty Schilling of Bippus, Ind., at LaPorts, Ind., September 6th.

DEATHS

GEORGE FRANCIS BRACKEN, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; served during the World War; aged 63; died, October 23.

ALBERT D. CHRISTIAN, Ottawa, Ill.; Northwestern University Medical School, Chicago, 1893; member of the Illinois State Medical Society; aged 73; died, October 20, in Mesa, Ariz., of injuries received when struck by an automobile.

GEORGE RUSSELL CURL, Chicago; Eclectic Medical College, Cincinnati, 1910; member of the Illinois State Medical Society; served during the World War; aged 57; formerly on the staff of the Veterans Administration Facility, Hines, where he died, October 8, of cerebral hemorrhage.

WILLIAM L. DOEPP, Homewood, Ill.; Chicago Medical College, 1887; member of the Illinois State Medical Society; formerly school physician; aged 77; died, October 23, in Rockford of cerebral arteriosclerosis.

GEORGE MICHAEL FITZGERALD, Chicago; University of Illinois College of Medicine, Chicago, 1915; member of the Illinois State Medical Society; served during the World War; aged 50; died, September 29, of cerebral hemorrhage.

GEORGE WASHINGTON HALL, Chicago; Rush Medical College, Chicago, 1893; Chairman of the Section on Nervous and Mental Diseases of the American Medical Association, 1929-1930; at one time vice president of the American Medical Golfing Association; instructor in laryngology and diseases of the chest from 1895 to 1901, instructor in materia medica and therapeutics, 1902, instructor in medicine from 1903 to 1905, assistant professor from 1906 to 1910, associate professor of nervous and mental diseases from 1911 to 1924 and clinical professor of neurology since 1925 at his alma mater; member of the American Neurological Association and the Association for Research in Nervous and Mental Diseases; past president of the Central Neuropsychiatric Association; fellow of the American College of Physicians; attending physician, Cook County Hospital, from 1908 to 1912 and attending neurologist from 1913 to 1926; on the staff of the Cook County Psychopathic Hospital from 1918 to 1930; attending neurologist, St. Luke's Hospital since 1916; aged 72; died, October 25, of coronary thrombosis, while attending the meeting of the Central Neuropsychiatric Association in Detroit.

GEORGE STEPHENSON HENDERSON, Holcomb, Ill.; College of Physicians and Surgeons of Chicago, 1895; member of Ills. State Medical Society, past president Ogle County Medical Society; Died, November 4, aged 76, in Swedish American Hospital, Rockford, of coronary thrombosis.

ALFRED FREDERICK JACOBSON, Chicago; Northwestern University Medical School, Chicago, 1905; in 1907 clinical assistant, in 1923 instructor and in 1925 associate in the department of dermatology at his alma mater; was associated with the city health department continuously since 1907, at which time he had the title of school inspector and since 1909 field health officer; aged 61; died, October 3, of carcinoma.

JOSEPH CARL KIMBALL, Joliet, Ill.; Northwestern University Medical School, Chicago, 1908; aged 58; was killed, September 26, in an automobile accident.

EDWARD GILBERT TROWBRIDGE, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; aged 86; died, September 29, in the Evanston (Ill.) Hospital of arteriosclerosis, and auricular fibrillation.

ANTON LISKA, Chicago; Jenner Medical College, Chicago, 1909; aged 71; died, September 21, of cerebral hemorrhage.

JOHN TERRENCE MILLER, Decatur, Ill.; Medical College of the State of South Carolina, Charleston, 1896; on the staffs of the Decatur and Macon County Hospital and the City Public Hospital; aged 69; died, September 23, in St. Mary's Hospital of lymphatic leukemia.

IRVIN JOHN PASCOE, Park Ridge, Ill.; Chicago College of Medicine and Surgery, 1910; member of the Illinois State Medical Society; served during the World War; health officer; on the staff of the Walther Memorial Hospital, Chicago; aged 56; died, October 19, of coronary thrombosis.

EMILY H. SELBY, Chicago; Harvey Medical College, Chicago, 1901; aged 80; died, September 9, in the Presbyterian Hospital.

FREDERICK CONRAD SCHURMEIER, Elgin, Ill.; Rush Medical College, Chicago, 1902; past president of the Kane County Medical Society; fellow of the American College of Surgeons; served as a member and president of the board of education; city physician from 1905 to 1907; member of the board of trustees of the Kane County Springbrook Sanitarium, Aurora; attending surgeon, Sherman and St. Joseph's hospitals; aged 69; died, October 6, of coronary thrombosis.

WALTER W. VOIGHT, Chicago; Christian-Albrechts-Universität Medizinische Fakultät, Kiel, Prussia, 1904; fellow of the American College of Surgeons; attending gynecologist, St. Joseph Hospital; aged 62; died, October 25, of coronary thrombosis.

ENVELOP METHOD OF TREATING BURNS AND WOUNDS DEVELOPED

British Navy Surgeon Devises a Covering Of Watertight Silk Which Eliminates The Need of Changing Dressings

An envelop method of treating burns and wounds, introduced by Surgeon Lieutenant Commander John Bunyan, of the British navy, is described in the September 27 issue of *The Journal of the American Medical Association* by its regular London, England, correspondent. Commander Bunyan has developed a watertight silk envelop which is placed over the involved portion of the body.

"The envelop is provided with an inlet and an outlet, so that a lesion of any part may be irrigated by inserting a glass nozzle," the correspondent reports. "A simple adhesive seal is fixed to the proximal end of the envelop at the factory, so that by removing the protective gauze one produces a watertight seal by lightly pressing the adhesive to the limb and covering with an adhesive bandage."

Explaining the need for an improved method of treating burns and wounds, *The Journal* correspondent says that Commander Bunyan "holds

that in the past success has been diminished by destructive antiseptics, by frequently changed dressings, painful to remove and destructive of adherent newly formed tissue, and by immobility and disuse of the part. A dressing which does not require changing is therefore desirable. It should be flexible, frictionless, bland to the tissues and transparent, so that progress may be observed. With the help of a manufacturer, envelops of coated silk, shaped for different parts of the body, were produced. For cleansing Bunyan uses a solution of electrolytic sodium hypochlorite, because it is the least irritant.

"So far the treatment has been mainly used for burns. Applied to a first degree burn the solution immediately relieves pain, and covering with adhesive plaster is all that is necessary. Second and third degree burns are washed with the solution, the envelop is applied and the solution is run through the envelop through the outlet. This irrigation is repeated three times a day. Good results from this method are reported from the Middlesex, King's College and London hospitals. . . ."

It is pointed out that the great value of envelop irrigation is that in no case treated by it, with or without cleansing in the operating room, will anything more than mild infection occur.

DO YOU KNOW

That tularemia or rabbit fever was an obscure and unrecognized disease prior to 1908? That it received its name from Tulare county, California, when Dr. George W. McCoy conducted an investigation of diseased ground squirrels and discovered the germ causing the disease?

That ticks are responsible for the spread of the disease among animals?

That tularemia is an acute infectious disease caused by *Bacterium tularense* and that it occurs in over twenty kinds of wild life and especially in wild rabbits and hares?

That human beings become infected by the contact of bare hands with the raw flesh and the blood of infected animals or by the bites of bloodsucking ticks and flies which have fed on such animals?

That symptoms of the disease include fever, chills, sweating, headache, vomiting, indefinite body uneasiness and prostration?

That you should be on the lookout for symptoms which are characteristic of these elusive fevers, that you should support ever legitimate agency working for their eradication and that you should consult your physician promptly if any of your family develops any of their symptoms.

Are the Neuritic Symptoms of Pregnancy *due to a deficiency* *of vitamin B₁ (thiamine)?*

SUCH common neuritic symptoms of pregnancy as pains in arms and legs, muscle weakness, and (less frequent but more serious) paralysis of the extremities may result from a shortage of antineuritic vitamins, recent investigations appear to show. Although neuronitis of pregnancy has long been considered a toxemia, no toxins have ever been identified.

Clinical observations of Strauss and McDonald lead to the conclusion that the condition is a dietary deficiency disorder similar to beriberi, caused by lack of vitamin B₁. They report recovery in their cases receiving this therapy, including dried brewers' yeast.

Hyperemesis as Cause of Avitaminosis

Wechsler observes that all cases of polyneuritis of pregnancy recorded in the literature were preceded by long periods of severe vomiting. "It would seem," he adds, "that because of actual starvation these patients suffered from avitaminosis and consequent neuritis," a view likewise held by Hirst, Luikart, and Gustafson. Plass and Mengert observe that the practice of giving high carbohydrate feedings for hyperemesis gravidarum is still more likely to cause avitaminosis.

Dried brewers' yeast, as it is far richer than any other food in vitamin B₁ (thiamine), is being used with benefit both in the prevention and treatment of polyneuritic symptoms of pregnancy. Lewy found that additions of yeast to the diet reduced electric irritability of the peripheral nerves and brought clinical improvement. Vorhaus states that he and his associates, after administering large amounts of vitamin B₁ (thiamine) to 250 patients having various types of neuritis, including that of pregnancy, observed in about 90% of cases "varying degrees of improvement, i.e., from partial relief of pain to complete disappearance of all symptoms."

Need for Vitamin B₁ (thiamine) in Lactation

Evans and Burr, Hartwell, Sure and co-workers, and Macy *et al* are among numerous authorities who find that the nursing mother also needs a supplement of vitamin B₁ (thiamine) from 3 to 5 times the normal requirement. It is accepted that during pregnancy and lactation the requirement for vitamin G (riboflavin) is increased.



Consisting of nonviable yeast, Mead's Brewers Yeast Tablets offer not less than 50 International vitamin B₁ (thiamine) units and 50 Sherman vitamin G (riboflavin) units per gram (20 International units of vitamin B₁ and 20 Sherman units of vitamin G per tablet).

Supplied in bottles of 250 and 1,000 tablets, also in 6-oz. bottles of powder.

HAVE YOU **THESE FACTS ON**

Recent U. S. government reports indicate a considerable increase in cigarette smoking. As physicians realize, this is a natural development during times of public tension.

This situation, and the advent of recent and very significant research, have greatly increased the interest of the profession in the subject of cigarette smoking.

Naturally, situations arise in which a physician may find it desirable to modify his patients' smoking hygiene. But in any case, the physician is concerned about the smoke itself, the principal carrier of physiologically reactive substances.

Scientific authorities in general agree that the constituent of cigarette smoke with the greatest physiologic significance is nicotine. Any reduction of this substance in a patient's smoking is considered desirable by most physicians.

When the modification of a patient's smoking is indicated, here are facts which should be of interest to you :

The makers of Camel cigarettes arranged for independent tests on 5 of the largest-selling brands of cigarettes. The rate of burning

CONSIDERED CIGARETTE SMOKING?

and the nicotine content of the smoke of Camels were compared to the averages of the other brands tested.

The results paralleled the findings of prominent medical—scientific authorities.* Here is the most important conclusion:

THE SLOWER-BURNING CIGARETTE PRODUCES LESS NICOTINE IN THE SMOKE

This research also suggests that by advising patients to smoke slower-burning Camels, it is possible to reduce the nicotine content of cigarette smoke *without sacrifice of smoking pleasure*. Thus, the patient's cooperation is assured.

A RECENT ARTICLE by a well-known physician in a leading national medical journal** presents new and important information on this subject, together with other data on the significance of the burning rate of cigarettes. There is a comprehensive bibliography. Let us send you this impressive article for your own inspection. Write to Camel Cigarettes, Medical Relations Division, 1 Pershing Square, New York City.

*J.A.M.A., Vol. 93, No. 15, p. 1110, Oct. 12, 1929

Bruckner, Die Biochemie des Tabaks, 1936

**The Military Surgeon, Vol. 89, No. 1, p. 7, July, 1941

Book Reviews

TEXTBOOK OF BACTERIOLOGY, By R. W. Fairbrother, D.Sc., M.D., M.R.C.P., Director of the Clinical Laboratory, Manchester Royal Infirmary; Special Lecturer in Bacteriology, University of Manchester; Major, R.A.M.A.; Late Research Fellow in Bacteriology, Lister Institute, London. The C. V. Mosby Company, St. Louis. Price, \$5.00.

In this, the third edition, Dr. Fairbrother, a bacteriologist of unquestioned ability and merit, has given the medical student a practical textbook for foundation work in bacteriology. The practicability of the book is enhanced because of the fact that the work is considered in its application to medical phases. The fact that Fairbrother has combined research with teaching adds to the value of this work as a textbook, and the material is presented in logical sequence.

While this material has been assembled for the student, the physician will find a complete "refresher" course in Bacteriology.

PRINCIPLES OF MICROBIOLOGY. By Francis E. Colien, B.S., M.S., Ph.D., F.A.P.H.A., Associate Professor of Bacteriology and Preventive Medicine in The Creighton University School of Medicine, and Ethel J. Odegard, R.N., A.B., M.A., Instructor in Sciences Applied to Nursing, College of Saint Teresa, Winona, Minnesota. The C. V. Mosby Company, St. Louis, Price \$3.00.

This is a textbook representing many years of teaching experience in bacteriology and immunology, well suited for its purpose, — use by those studying to become nurses. The style is concise, and the illustrations numerous and excellent. The author has included directions for the preparation of a few media and stains. The material is assembled and prepared primarily for the student, and there is a glossary of terms at the end of the book which should prove helpful.

NECROSPY, A Guide for Students of Anatomic Pathology. By Bela Halpert, M.D., Assistant Professor of Pathology and Bacteriology, Louisiana State University School of Medicine; and Visiting Pathologist, Charity Hospital of Louisiana at New Orleans. The C. V. Mosby Company, St. Louis. Price \$1.50.

This is a thin volume of pocket size in which some forty pages are devoted to necropsy methods, with about fifteen more pages given to the presentation of two illustrative necropsy protocols. Perhaps even in a work so brief, more space should be devoted to the actual directions needed or difficulties to be avoided in making an examination. The two protocols are informative and the little book is well written, and extremely "handy."

ESSENTIALS OF PHARMACOLOGY AND MATERIA MEDICA FOR NURSES. By Albert J. Gilbert, M.D., Instructor of Pharmacology, Aultman School of Nursing, Canton, Ohio; formerly Instructor of Pharmacology and Therapeutics, John Sealy College of Nursing; former Instructor of Pharmacology, University of Texas Medical School, Galveston; and Selma Moody, R.N., Instructor in Nursing Arts, The Presbyterian Hospital of the City of Chicago. The C. V. Mosby Company, St. Louis. Price \$2.25.

This new text on pharmacology and materia medica for nurses, contains much useful information, and is simple in manner of presentation, easy to use, and fairly comprehensive. The authors suggest that the more commonly used texts are sufficiently exhaustive to be used as reference books, hence the simple and brief presentation adopted by them. This brevity appears to be the chief weakness of this book, since after graduation nurses should be familiar with more comprehensive works on these subjects. However, this familiarity with more comprehensive work, can be attained by through adequate class room instruction and the use of other source material.

As it stands now, simplicity is the keynote of this little book, and this material should meet the popular demand for such a presentation for student nurses.

BODY MECHANICS IN HEALTH AND DISEASE.

By Joel E. Goldthwait, M.D., Lloyd T. Brown, M.D., Loring T. Swaim, M.D., John G. Kuhns, M.D., and William J. Kerr, M.D., Third Edition. J. B. Lippincott Company, Philadelphia. Price \$5.00.

In recent years the early recognition and proper treatment of conditions which inevitably lead to disease have become one of the most important functions of modern medicine. This holds true in consideration of the role played by faulty body mechanics in health and in disease. The authors have incorporated the most comprehensive and up to date knowledge of the principles of correct body mechanics as applicable to the various systems of the body.

The discussions are logical and completely reasonable. There are well chosen photographs and diagrams and descriptions of proper exercises or orthopaedic appliances. This book presents a well balanced treatment of a fundamental field of modern medicine.

CLINICAL IMMUNOLOGY, BIOTHERAPY AND

CHEMOTHERAPY. By John A. Kolmer, M.S., M.D., Dr.P.H., Sc.D., LL.D., L.H.D., F.A.C.P., and Lorius Tuft, M.D. W. B. Saunders Company, Philadelphia. Price \$10.00.

This most practical text presents the well correlated modern aspects of immunology, biotherapy and chemotherapy in their important relationship to the clinical applications of these subjects in the diagnosis, prophylaxis and treatment of disease. The importance of a well founded acquaintance with these principles for the physician in every field of medicine is obvious.

The first part of the book concerns the general aspects of infection, immunity, biotherapy and chemotherapy, while the second part discusses their practical or clinical application. Such immunologic procedures as appear frequently in general practice are discussed, and summaries at the end of the chapters and the essential references add much value to the book.

Physicians will find this work well within the scope of practicability, and an outstanding contribution to this field of medicine.

ESSENTIALS OF GENERAL SURGERY. By Wallace

P. Ritchie, M.D., Clinical Assistant Professor, Department of Surgery, University of Minnesota Medical School. The C. V. Mosby Company, St. Louis. Price \$8.50

As stated in the foreword written by Owen H.

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BOOK REVIEWS (Continued)

Wangensteen, M.D., "The task of encompassing the essentials of surgery in a single volume constitutes a serious problem for anyone who undertakes the labor." The book, although written primarily for the undergraduate student of surgery, should be of interest to all physicians desirous of reviewing the surgical advances of recent years, and to note the inter-relationship of modern surgery and other branches of medicine."

A brief history of the development of surgery is given in the first chapter, beginning with the Paleolithic period of some 25,000 years ago, then through the ages with some historical data regarding many of the succeeding eras, giving the notable contributions to surgery.

In chapter two, we note a well systematized discussion of anesthesia which includes the most recent advances in this interesting field. Surgical technique in chapter three gives much information to the student and will be of interest to all physicians desirous of reviewing the subject. In subsequent chapters the field of surgery is well covered, giving the essentials with only short references to surgical technique.

The book is really a product of the surgical department of the University of Minnesota, for although Dr. Ritchie did the actual writing, all of the members of the surgical staff under the direction of Dr. Owen Wangenstein, contributed freely in producing this fine book.

CARDIAC CLINICS. By Frederick A. Willius, B.S., M.D., M.S., The C. V. Mosby Company, St. Louis, Missouri.

The motivating influence in the preparation of this book was the desire of the author to bring to the general practitioner of medicine a solution to his problems in diagnosing and treating heart disease. The brief informal discussions have appeared previously in the proceedings of the staff meetings of the Mayo Clinic, and they have been so arranged that most of the subjects can be read in ten minutes.

The cases presented in the book are largely those which the average physician in general practice en-

counters in his work, and the case records are those of patients seen at the Mayo Clinic. The author frankly discusses those cases in which an erroneous diagnosis had been made, basing his remarks on the necropsy findings, and these candid discussions are prompted by a desire to correct these errors in the future.

A decade or so ago it was quite popular in the teaching of cardiology to center the discussion about the presence of murmurs, while today it is the desire of the instructor to place murmurs in their proper relationship to other signs and findings. The author, like most modern cardiologists, discusses in more detail those findings in the field of cardiology in the various epochs of life.

Much attention is given to diseases of the pericardium, rheumatic heart disease, cardio-vascular syphilis, coronary disease, and those degenerative cardiac disturbances of people in the older age brackets. An interesting feature of the book is that section devoted to questions and answers relative to many problems in our present day considerations of this subject. The average article on heart disease in medical journals and books, fails to answer many of the questions which come to mind on the part of the reader, and after reading such an article, his problem remains unsolved.

The book should be most popular with the general practitioner of medicine, and is highly recommended by the reviewer.

TEXTBOOK OF MEDICINE. Edited by J. J. Conybeare, M.D., F.R.C.P., Physician to Guy's Hospital, London. Williams and Wilkins, Baltimore. Price \$7.50.

This is the fifth edition of a popular book brought out only two years after the last edition came from the press. Although edited by Conybeare, sixteen contributors participated in its preparation.

The subject of medicine is well covered in the text, and special sections are devoted to the consideration of tropical infections. Diseases of the blood, spleen and lymphatic glands, psychological medicine, and common diseases of the skin are discussed fully.

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The book is well written and contains much valuable information usually not found in a single volume.

INFANT NUTRITION. By Williams McKim Marriott, B.S., M.D., Revised by P. C. Jeans, A.B., M.D. The C. V. Mosby Company, St. Louis, Missouri. Price \$5.50.

This is the third edition of a most popular book, with the present edition carrying on the fine work of Dr. Marriott properly, as Dr. Jeans was for a period of years associated with this well known author, and had no variance in the many subjects pertaining to the question at hand.

The book which covers the many subjects pertaining to growth and development of the child, metabolism, infant feeding and many other similar problems, is brought up to date in giving information concerning the use of many of the newer drugs in nutritional disturbances, and other common ailments in pediatric practice.

The last chapter on miscellaneous technique, outlines such important subjects as urine cultures, stool cultures, collection of blood, blood machine and

blood transfusions, and the intravenous administration of glucose and other substances.

The book is well illustrated and should be of much value to those physicians who care for infants as well as to students who will find much information of value to them in their studies.

Books Received

The following books have been received for reviewing, and are herewith acknowledged. This listing should be considered as a sufficient return for the courtesy of the sender. Books that appear to be of unusual interest will be reviewed as space permits each month. Readers desiring additional information relative to books listed, may write the Editor who will gladly furnish same promptly.

NUTRITIONAL DEFICIENCIES. By John B. Youmans, M.S., M.D., J. B. Lippincott Company, Philadelphia. Price \$5.00.

FUNCTIONAL PATHOLOGY. By Leopold Lichtwitz, M.D., Chief of the Medical Division of Montefiore Hospital; Clinical Professor of Medicine, Columbia University, New York. Grune & Stratton, Inc., New York. Price \$8.75.

DISEASES OF WOMEN. By Harry Sturgeon Cros-

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BOOKS (Continued)

sen, M.D., F.A.C.S., Professor Emeritus of Clinical Gynecology, Washington University School of Medicine; Gynecologist to the Barnes Hospital, St. Louis Maternity Hospital and St. Luke's Hospital; Consulting Gynecologist to DePaul Hospital and the Jewish Hospital; Fellow of the American Gynecological Society and of the Central Association of Obstetricians and Gynecologists; and

By Robert James Crossen, A.B., M.D., Assistant Professor of Clinical Gynecology and Obstetrics, Washington University School of Medicine; Assistant Gynecologist and Obstetrician to the Barnes Hospital and St. Louis Maternity Hospital; Assistant Gynecologist to the St. Louis Children's Hospital; Gynecologist and Obstetrician to St. Luke's Hospital and to DePaul Hospital; Fellow of the Central Association of Obstetricians and Gynecologists; Diplomate of American Board of Obstetrics and Gynecology. Ninth Edition. The C. V. Mosby Company, St. Louis. Price \$12.50.

THE MODERN TREATMENT OF SYPHILIS. By Joseph Earle Moore, M.D., Associate Professor of Medicine, The Johns Hopkins University; Physician in charge Syphilis Division of the Medical Clinic and Visiting Physician, The Johns Hopkins Hospital Baltimore; Special Consultant, United States Public Health Service. With the Collaboration of Jarold E. Kemp, M.D., Associate in Venereal Disease, The Johns Hopkins University, Harry Eagle, M.D., Passed Assistant Surgeon, United States Public Health Service and Lecturer in Medicine, The Johns Hopkins University; Paul Padget, M.D., Associate in Medicine, The Johns Hopkins University; Mary Stewart

Goodwin, M.D., Instructor in Pediatrics, The Johns Hopkins University. Charles C. Thomas, Publishers, Springfield, Ill., and Baltimore, Maryland. Price \$7.00.

THE TREATMENT OF INFANTILE PARALYSIS IN THE ACUTE STAGE. By Elizabeth Kenny, Bruce Publishing Company, Minneapolis, St. Paul, Minnesota. Price \$3.50.

INFANT NUTRITION, A Textbook of Infant Feeding for Students and Practitioners of Medicine. By Williams McKim Marriott, B.S., M.D., Late Professor of Pediatrics, Washington University School of Medicine, Physician in Chief, St. Louis Children's Hospital, St. Louis. Revised by P. C. Jeans, A.B., M.D., Professor Pediatrics, College of Medicine State University of Iowa, Iowa City. The C. V. Mosby Company, St. Louis, Missouri. Price \$5.50.

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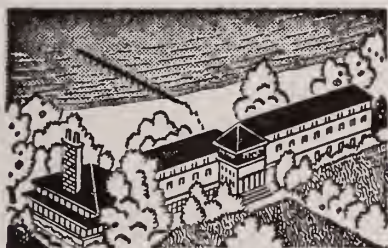
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REPORT NEW METHOD OF GRAFTING SKIN ON LARGE PORTIONS OF BODY

The Technic Of Two Minneapolis Physicians
 Enabled Them To Prepare One Graft
 With Area Of 176 Square Inches

A method of skin grafting which they term "blanket graft," by which they prepared a graft with a total area of 176 square inches, believed by them to be the largest ever reported in medical literature, is described by H. O. McPheeters, M.D., and Harvey Nelson, M.D., Minneapolis, in *The Journal of the American Medical Association* for October 4.

The two men point out that the ordinary methods of making skin grafts have definite shortcomings in the resurfacing of large areas involving a complete loss of skin, such as from an entire thigh or leg. They say that as a rule only an exceptionally experienced physician can get a strip of skin more than 2 inches wide at one time, and that also there frequently is the technical difficulty of cutting grafts of uniform thickness.

Their method, which overcomes most of the objections to other technics, involves the use of an instrument called the Padgett dermatome. This consists of a drum with a surface 4 by 7 inches with a blade of razor steel set close to the surface which can be adjusted by means of calibrated screws to any thickness from the drum face.

"In this way," the Minneapolis men report, "the thinnest razor graft can be cut or the full thickness of the skin can be taken if it is so desired. A special glue is painted on the drum surface as well as on the skin of the donor area after proper preparation. This is allowed to dry well. The face of the drum is then applied to the skin with a firm pressure and gradually rolled backward while the blade is rapidly moved back and forth against the skin as it is lifted by the adhesive effect of the glue. This shaves off the graft at any predetermined thickness and the full width of the drum if desired. The graft is then easily removed from the drum and applied over the granulating area to be covered and sutured well in place. . . .

"A careful search of the literature makes no mention of what we have termed the 'blanket graft.' We believe that we are the first to make

use of and report this idea. It is particularly adapted to and used in covering an extensive granulating area such as an entire thigh, a large part of the back or body elsewhere.

"In applying this idea we have made a pattern of the area to be covered by tailoring a sheet of guttapercha to fit it exactly. This is then pinned on an ordinary drawing board covered by a warm moist towel. The grafts are then placed over this pattern one after the other and sutured together to conform to the pattern. The excess skin over the edge of the pattern is trimmed off and sutured elsewhere. In this way we have made a tailored sheet of skin graft, easily sutured together over the firm base in just the right size and shape. It is a simple matter to apply this 'blanket graft' over the entire granulating area at one time and adjust it to fit. In this way the graft does not need to be sutured to the granulations, which bleed so easily, but only to the edges of good skin on all sides. . . .

"In one particular case we prepared one graft with a total area of 176 square inches, or 1,100 square centimeters, and a second graft of 149 square inches, or 931.25 square centimeters. We believe that the larger of these two is the largest 'blanket graft' that has ever been reported in the literature. It is nearly 200 square centimeters larger in total amount of skin transferred at one sitting than we can find any report of. In spite of the extent of these grafts, the procedure was simple and easy and the end result was as good as with any small graft, the first graft taking 92 per cent and the smaller graft 90 per cent, so that no subsequent grafting was necessary."

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Physicians today are more fully alert in diagnosing amebiasis as they now realize the disease may be found anywhere. Craig¹ examined 49,336 people from all parts of the United States for amebae and found 5,720 (11.6 per cent) to be infested.

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* Trade Mark Reg. U. S. Pat. Off. Word "Vioform" identifies the product as iodo-chloroxyquinoline of Ciba's manufacture.

¹ Craig, C. F.: Amebiasis and Amebic Dysentery (1934).

² Zener, F. B., Am. J. Surg. 44:416 (1939).



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SAYS WHAT NOT TO DO IS AS VITAL AS WHAT TO DO FOR 'COMMON COLD'

The Unintentional Mistreatment Of Children
Who May Be Suffering From Another
Condition Is Decried By Doctor

Educating parents in what not to do is as vital as instructing them in what to do in treating children who give evidence of coming down with a "cold," according to Herman M. Jahr, M.D., Omaha, who protests in *Hygeia, The Health Magazine* for October against the almost universal unintentional mistreatment by mothers of youngsters who are suffering from a condition which may possibly be misdiagnosed by the layman.

"There is hardly a practicing physician who has not encountered some grave illness which had been treated as a cold for days or even weeks," Dr. Jahr declares. "Valuable time wasted on home remedies frequently robs the youngster of his best chances for early recovery. Polio-myelitis, pneumonia, meningitis and many other important diseases start with symptoms of a 'cold'."

As the safest and most economical measures to be followed at the onset of that which parents ordinarily interpret as a cold, Dr. Jahr suggests: (1) isolation of the patient from others, (2) rest in bed if there is any suspicion of fever and (3) immediate notification of the physician. "Certain seasons of the year," he says, "are characterized by a prevalence of certain diseases and the experienced physician usually has a fair idea of what is 'going around' in the locality at a particular time. At any rate he will not be able to tell you what to do until he sees the child."

No parent is justified in tampering with a condition that is full of serious possibilities, Dr.

(Continued on page 36)

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COMMON COLDS (Continued)

Jahr advises, suggesting a number of procedures and home remedies which overanxious parents should guard against as being potentially harmful to the child.

"Don't give a cathartic without the advice of the physician," he cautions. "No amount of bowel purging will 'drive' the infection out of the upper respiratory tract. And never, never give a cathartic on your own initiative to a child with abdominal pain. If there is no obstruction or inflammation in the intestines a cathartic is not needed. Should there be inflammation or obstruction the results may be disastrous.

"Don't pour oily drops into the nose of a child. There are many cases on record in which pneumonia resulted from breathing these medications into the lungs. Most of them do little if any good.

"Don't rub his chest with medicated greases. They only add to discomfort. . . .

"Don't attempt to alkalize. . . . Your child does not have acidosis. If he is in that imminent physiologic state, he will need more technical treatment than you yourself can supply.

"Don't let the child talk you out of (his) remaining in bed as long as he has fever. In the case of an infant, remember that it is just as easy for him to fuss in his crib as it is in your arms. He can rest much better when he lies down than when you carry him around.

"Don't take it for granted that sneezing and

sniffling are due to 'nothing but a cold.' Let your doctor make the diagnosis. . . .

"Don't overlook the fact that the common cold is the most contagious disease known to man. Unless you use ample precautions you and every one else in the family may contract it. . . .

"In the interest of your neighbor's children don't send your youngster to school with a runny nose. Perfect attendance is no longer a fetish with well informed teachers. . . . The common cold, it should be recalled, is the most contagious of all known diseases, and the crowding which is common in modern living serves as a constant medium of exposure."

Regarding the stages of the common cold, Dr. Jahr says: "The stage of invasion may occur within a few hours after exposure. There is congestion and inflammation of the nose, throat and trachea (windpipe). This congestion lasts one or two days and produces an irritation of the cells lining these structures.

"The second stage is that of secretion. Large quantities of mucus and bacterial remnants . . . are poured out from the nose. This is the most contagious period. It lasts from twenty-four to seventy-two hours.

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Hope for success in the search for effective substitutes for quinine and atabrine in the treatment of malaria, a quest which has been spurred by the possibility that the present war may shut off supplies of quinine to this country, is further brightened by a report in *The Journal of the American Medical Association* for September 27 by L. T. Coggeshall, M.D., and John Maier, M.D., New York, and C. A. Best, M.D., Major, M.C., U. S. Army, Ancon, Canal Zone. They say that investigations show that promin and sulfadiazine, two recent derivatives of sulfanilamide, unrelated to quinine or atabrine, possess considerable activity against experimental and human malaria. Their findings, they believe, justify further study of the antimalarial possibilities of the two drugs and their related compounds.

Seventeen patients acutely ill with malaria were treated with promin and the results revealed, the three men say, a definite effect on naturally acquired human malaria infections. Thirteen patients with malaria were treated with

sulfadiazine and there was a demonstrable effect in 10 cases but none in 3. "Although the effect of this drug was definite," they declare, "it appeared to be less active than promin. . . .

"It should be emphasized that at present there are no reasons for giving the drugs in preference to quinine or atabrine for the treatment of malaria, and they should be regarded only as important substitutes."

Another reason for the importance of finding substitutes for quinine and atabrine is explained by the authors who say: "There is need for better antimalarial drugs because of certain fundamental deficiencies in quinine and atabrine. Although both are of great importance to the person with an acute attack of malaria, neither can be relied on to remove the infection completely, and for this reason their effect on malaria from a public health standpoint probably is minimal. . . . In addition, none of these drugs has a true prophylactic (preventive) action. Their only action when taken in advance of the bite of an infected mosquito is the temporary suppression of a clinical attack."

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